



Massachusetts Department of Conservation and Recreation
Bureau of Planning, Design & Resource Protection
Resource Management Planning Program

RESOURCE MANAGEMENT PLAN

Blue Hills Complex

Including Blue Hills Reservation, Cutler Park Reservation, Wilson Mountain Reservation, Neponset River Reservation (in part), F. Gilbert Hills State Forest, Bristol Blake State Reservation, Franklin State Forest, Wrentham State Forest, Rehoboth State Forest, West Bridgewater State Forest, Bridgewater State Forest, and Borderland State Park





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RESOURCE MANAGEMENT PLAN

2017

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Matthew A. Beaton, Secretary
Leo Roy, Commissioner

The Massachusetts Department of Conservation and Recreation (DCR), an agency of the Executive Office of Energy and Environmental Affairs, oversees 450,000 acres of parks and forests, beaches, bike trails, watersheds, dams, and parkways. Led by Commissioner Leo Roy, the agency's mission is to protect, promote, and enhance our common wealth of natural, cultural, and recreational resources. To learn more about the DCR, our facilities, and our programs please visit us www.mass.gov/dcr. Contact us at mass.parks@state.ma.us.



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EXECUTIVE SUMMARY

INTRODUCTION

Resource Management Plans (RMPs) are working documents that provide a guide to the short- and long-term management of properties under the stewardship of the Department of Conservation and Recreation (DCR). They include an inventory and assessment of natural, cultural, and recreational resources; identify unique characteristics and values of a property; analyze complex resource protection and recreation issues; and develop clear management recommendations. They guide the management of DCR's properties by setting priorities, targeting capital and operational resources, protecting sensitive resources, and improving communication and cooperation with park visitors and the surrounding communities.

The Department of Conservation and Recreation is directed by legislative mandate (M.G.L. Chapter 21: Section 2F) to prepare management plans for "all reservations, parks, and forests under the management of the department." Although the mandate does not specify the format or content of these management plans, it does require that:

"Said management plans shall include guidelines for the operation and land stewardship of the aforementioned reservations, parks and forests, shall provide for the protection and stewardship of natural and cultural resources and shall ensure consistency between recreation, resource protection, and sustainable forest management."

The legislative mandate also establishes two other requirements. First, that the DCR "shall seek and consider public input in the development of management plans, and shall make draft plans available for a public review and comment period through notice in the Environmental Monitor." Second, management plans must be reviewed and adopted by the DCR Stewardship Council, a thirteen-member citizen oversight entity. Within 30 days of adoption, the Commissioner "...shall file a copy of such management plans as adopted by the council" with the Secretary of State and the Joint Committee on the Environment, Natural Resources and Agriculture.

This plan covers the Blue Hills Complex.

THE BLUE HILLS COMPLEX

The Blue Hills Complex includes DCR properties in an area largely defined by Routes 95, 495, and 24. It includes state parks, forests, and reservations; other DCR-owned properties; and properties on which the DCR holds a legal interest.

The following 12 parks, and their associated properties, are included in the Blue Hills Complex:

- Blue Hills Reservation (Blue Hills)
- Cutler Park Reservation
- Wilson Mountain Reservation
- Neponset River Reservation (in part; upstream of Paul's Bridge only)
- F. Gilbert Hills State Forest, including Barton State Park
- Bristol Blake State Reservation
- Franklin State Forest
- Wrentham State Forest
- Rehoboth State Forest
- West Bridgewater State Forest
- Bridgewater State Forest
- Borderland State Park

The DCR also owns the following real properties in the Complex; not all are managed by the DCR:

- Blue Hills and Furnace Brook parkways (in part)
- Skating rinks (4)
- Swimming pools (2)
- Angle Tree Monument Reservation
- Town Brook Flood Control Site
- Fire Observation Towers (2) and one associated parcel of land.

In addition to these real assets, the DCR holds conservation restrictions on seven properties (398.94 acres, total). It also has a regulatory interest in five Areas of Critical Environmental Concern (ACECs) that are entirely, or partially, located within the Complex.

PUBLIC PARTICIPATION IN DEVELOPING THIS RESOURCE MANAGEMENT PLAN

Notice of a public meeting and of the DCR's intent to prepare an RMP for the Blue Hills Complex was published in the October 19, 2015 Environmental Monitor (Volume 84, Issue 12). Notices were also posted at the Complex's parks and e-mailed to approximately 950 stakeholders. An initial public meeting was convened at the Blue Hills Trailside Museum, Milton on October 28, 2015. Approximately 28 people attended this meeting, which ran from 7:00 to 8:30 P.M.

The initial public comment period ran from October 29, 2015 through November 27, 2015; 14 sets of written comments were received.

Notice of a public meeting on the draft RMP for the Blue Hills Complex, and of the availability of the plan, was published in the October 24, 2016 Environmental Monitor (Volume 86, Issue 12). Meeting notices were also posted at the Complex's parks and mailed to stakeholders. The meeting was held on November 10, 2016 at the Sharon Public Library; 28 people attended.

The public comment period on the draft RMP ran from November 11 through December 12, 2016; 5 sets of written comments were received, including those from the Massachusetts Historical Commission and MassWildlife.

Additional information on the public process for this RMP is provided in Appendix B (Public Participation).

This Resource Management Plan was submitted to the DCR's Stewardship Council on March 3, 2017, and was adopted by the council on April 12, 2017.

RECOMMENDATIONS

Ninety-one priority management recommendations were developed for the Complex in its entirety, individual parks within the Complex, and associated properties. Thirty of these were previously included in a previous RMP and meet current prioritization criteria (DCR 2011). Three recommendations apply to all properties in the Complex, and four others apply to more than one property.

For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Health and safety of park visitors and employees.
- Imminent pending loss of a natural, cultural, or recreation resource.

Priority recommendations are summarized in Table ES-1.

Table ES.1. Summary of management recommendations for the Blue Hills Complex.

Recommendation	Complex	Blue Hills	Cutler Park	Wilson Mountain	Neponset River	F. G. Hills	Bristol Blake	Franklin	Wrentham	Rehoboth	West Bridgewater	Bridgewater	Borderland
Conduct regular monitoring of properties in which the DCR has a legal interest (i.e., conservation restriction, easement) for consistency with agreements.	X	-	-	-	-	-	-	-	-	-	-	-	-
Brief field operations personnel about their role in dam maintenance, and develop and implement a systematic, Complex-wide approach to dam maintenance to be performed by the Field Operations Team.	X	-	-	-	-	-	-	-	-	-	-	-	-
Contact the Office of Cultural Resources before starting any project beyond those described in the BMPs that may impact cultural resources identified in this RMP.	X	-	-	-	-	-	-	-	-	-	-	-	-
Reduce trail user conflicts by: developing and distributing trail etiquette literature; posting trail etiquette “Yield” signs at kiosks, bulletin boards, and key locations along trails; revising future trail maps to include information on trail etiquette; and working with the DCR Mounted Unit and partners to offer training in trail etiquette. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Increase ranger presence on trails to promote enhanced compliance with trail regulations. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Work with MassDOT, and other transportation planning entities, to reduce through and commuter traffic in the reservation. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Using new traffic count data, conduct an assessment of pedestrian safety. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Work with the Massachusetts State Police to develop a speed enforcement plan. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Install “Share the Road” and bicycle vehicular traffic warning signs on internal park roads and parkways to increase driver awareness of the presence of cyclists. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Advocate that MassDOT install a left-hand turn lane on Route 138 south for vehicles to enter the Trailside Museum south parking lot. Request that MassDOT perform a safety study and warrant analysis for a left-hand turn lane from Route 138 south into the Trailside Museum south parking lot. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Have a structural engineer inspect the foundation of the ski area’s main lodge and make recommendations for its maintenance, repair, or replacement. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
[Note: the option to replace the ski lodge has been added to this recommendation.]													
Work with the ski area operator to ensure that all portions of the ski slopes have an “erosion-protective cover of vegetation.” ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Modify signs and striping at the Trailside Museum north and south parking lots to ensure compliance with accessible parking requirements. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-

Table ES.1. Summary of management recommendations for the Blue Hills Complex.

Recommendation	Complex	Blue Hills	Cutler Park	Wilson Mountain	Neponset River	F. G. Hills	Bristol Blake	Franklin	Wrentham	Rehoboth	West Bridgewater	Bridgewater	Borderland
Replace the Great Blue Hill pump house roof's sheathing and shingles. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Make a portion of Picnic Site 4 accessible by installing accessible grills and picnic tables, and creating a hardened path to nearby accessible parking. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Modify signs and striping at the main Houghton's Pond and Site 5 parking lots to ensure compliance with accessible parking requirements. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Establish a safe pedestrian connection between Houghton's Pond and Brookwood Farm by improving the intersection of Hillside Street and Blue Hill River Road in Milton. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Investigate the potential septic system connection at the Police Station. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Modify signs and striping at the Ulin Rink parking lot to ensure compliance with accessible parking requirements. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Complete the mothballing of the Randolph Avenue Stable by ensuring that all openings are properly sealed and there is adequate ventilation. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Evaluate locations of trails relative to the dens of state-listed snakes and reroute or close trail segments, as necessary, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a). ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
[Note: This manual was updated in October 2014.]													
Improve the crosswalk at the Chickatawbut Overlook. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Reinstitute seasonal nighttime closings of Chickatawbut Road, east of Route 28, and Wampatuck Road; as recommended by the NHESP (2007a). ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Develop and implement vista clearing protocols for the Chickatawbut Overlook viewshed. This recommendation may be implemented in advance of the VMP. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Develop and implement vegetation maintenance protocols for the Chickatawbut Observation Tower, Chickatawbut Pavilion, and picnic area. This recommendation may be implemented in advance of the VMP. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Exclude all non-emergency vehicles, except in exigent situations, and non-utility company motor vehicles from trails in rare snake habitat east of Route 28. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
[Note: In the 2011 RMP, this recommendation was made three times, once for the Buck Hill, Chickatawbut, and St. Moritz sections.]													
Plan landscaping, maintenance, and construction to avoid impacts to rare snakes; as recommended by the NHESP (2007a). ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Stabilize and mothball the Granite Rail Quarry compressor house. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-

Table ES.1. Summary of management recommendations for the Blue Hills Complex.

Recommendation	Complex	Blue Hills	Cutler Park	Wilson Mountain	Neponset River	F. G. Hills	Bristol Blake	Franklin	Wrentham	Rehoboth	West Bridgewater	Bridgewater	Borderland
Modify signs and striping at the Shea Rink parking lot to ensure compliance with accessible parking requirements. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Install a memorial marker at the Sergeant Robert Allen Curry Ball Field. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Work with the AMC Ponkapoag Camp to bring the camp into compliance with State Sanitary Code. ^a	-	X	-	-	-	-	-	-	-	-	-	-	-
Work with the Canton and Randolph Boards of Health, and the Massachusetts Department of Public Health to ensure that Public Health Fish Consumption Advisory signs are posted at Ponkapoag Dam, Fisherman’s Beach, AMC Ponkapoag Camp, and the entrance to the Ponkapoag Boardwalk.	-	X	-	-	-	-	-	-	-	-	-	-	-
Promote the regeneration of native forests by decreasing deer populations to the recommended density of 6 to 18 deer/mi ² of forest, through regulated hunting, in order to reduce deer browse.	-	X	-	-	-	-	-	-	-	-	-	-	-
Implement the eight life safety and nine near-term asset protection recommendations for the Blue Hill Meteorological Observatory as identified in DCR and Turowski2 Architecture, Inc. (2015).	-	X	-	-	-	-	-	-	-	-	-	-	-
Implement the eight life safety recommendations for the Eliot Bridge and Pavilion as identified in DCR and Turowski2 Architecture, Inc. (2015).	-	X	-	-	-	-	-	-	-	-	-	-	-
[Note: This supersedes the recommendation in the 2011 RMP to “Replace the Great Blue Hill Observation Tower and Eliot Pavilion’s roof and repair damaged masonry.”]													
Roof and side the Gate Keeper’s Cottage at Brookwood Farm so that water does not penetrate the building envelope.	-	X	-	-	-	-	-	-	-	-	-	-	-
Implement structural repairs to the east wall of the Brian T. Broderick Stables.	-	X	-	-	-	-	-	-	-	-	-	-	-
Remove flammable (e.g., gasoline) and combustible (e.g., motor oil, two-stroke oil) materials from storage locations in historic buildings; identify alternate storage location(s) that meet all relevant safety codes. Remove power equipment from all historic buildings not intended for this use.	-	X	-	-	-	-	-	-	-	-	-	-	-
Conduct a carrying capacity study for the Houghton’s Pond Recreation Area.	-	X	-	-	-	-	-	-	-	-	-	-	-
Work with Brookwood Community Farm to ensure consistency with the terms of their Special Use Permit.	-	X	-	-	-	-	-	-	-	-	-	-	-
Work with MassDOT to establish a signalized crosswalk across Route 138 for use by trail users and for park visitors seeking to safely access the Route 138 Park and Ride lot from the ski area and Trailside Museum.	-	X	-	-	-	-	-	-	-	-	-	-	-
Work with MassDOT to identify which trail crossing locations along Route 28 are appropriate for the installation of mid-block crosswalks. Install crosswalk lines, signs, and pedestrian actuated signal devices as appropriate.	-	X	-	-	-	-	-	-	-	-	-	-	-

Table ES.1. Summary of management recommendations for the Blue Hills Complex.

Recommendation	Complex	Blue Hills	Cutler Park	Wilson Mountain	Neponset River	F. G. Hills	Bristol Blake	Franklin	Wrentham	Rehoboth	West Bridgewater	Bridgewater	Borderland
Install Color Core signs at trail intersections along both sides of Route 28 that direct trail users to locations of crosswalks associated with trail crossings or the signalized crosswalk at Route 28 and Chickatawbut Road, and recommend that these crosswalks be used during periods of heavy traffic volume.	-	X	-	-	-	-	-	-	-	-	-	-	-
Work with local Boards of Health and the Massachusetts Department of Public Health to ensure that Fish Consumption Health Advisory signs are posted at major fishing access points at Cutler Park, Charles River Reservation, and Kehoe Park.	-	-	X	-	-	-	-	-	-	-	-	-	-
Repair damage to mothballing of Newton Water Works pump house.	-	-	X	-	-	-	-	-	-	-	-	-	-
Work with commercial pet walkers to obtain the required permit for their commercial activity at Cutler Park. [Note: Similar recommendations were made for Wilson Mountain, Fowl Meadow, and Borderland.]	-	-	X	X	X	-	-	-	-	-	-	-	X
Survey boundary of Cutler Park, along Rosemary Road, Dedham, to determine if encroachments have occurred; resolve as warranted.	-	-	X	-	-	-	-	-	-	-	-	-	-
Actively promote awareness of, and compliance with, DCR regulation that require animals (e.g., dogs) to be “on a tether or leash no greater in length than 10 feet.” (302 CMR 12.13(2)).	-	-	-	X	-	-	-	-	-	-	-	-	-
Meet with representatives of The Trustees of Reservations to clarify status of the 2008 Memorandum of Agreement and, if appropriate, develop a work plan for future stewardship activities.	-	-	-	X	-	-	-	-	-	-	-	-	-
Conduct annual reviews of the Rare and Endangered Species Habitat Management Plan for Fowl Meadow; update as needed and implement.	-	-	-	-	X	-	-	-	-	-	-	-	-
Conduct active habitat management for rare plants at Fowl Meadow, as recommended in NHESP (2007).	-	-	-	-	X	-	-	-	-	-	-	-	-
GPS official trails, update maps, and make information publically available on the DCR web page.	-	-	-	-	X	-	-	-	-	-	-	-	-
Survey boundary of Farnham & Connolly along Culloden Drive, Canton to determine if encroachments have occurred; resolve any encroachments with abutters.	-	-	-	-	X	-	-	-	-	-	-	-	-
Determine if the MBTA has a legal right to cross Farnham & Connolly to access their property from Culloden Drive.	-	-	-	-	X	-	-	-	-	-	-	-	-
Work with MBTA to gate northern spur of Culloden Drive, Canton, to stop illegal vehicle entry into park.	-	-	-	-	X	-	-	-	-	-	-	-	-

Table ES.1. Summary of management recommendations for the Blue Hills Complex.

Recommendation	Complex	Blue Hills	Cutler Park	Wilson Mountain	Neponset River	F. G. Hills	Bristol Blake	Franklin	Wrentham	Rehoboth	West Bridgewater	Bridgewater	Borderland
Address deficiencies to the Sunset Lake Dam as identified in Fuss & O'Neill (2011).	-	-	-	-	-	X	-	-	-	-	-	-	-
Update bathrooms to meet current accessibility standards.	-	-	-	-	-	X	-	-	-	-	-	-	-
Create one accessible parking space, with proper markings, signs, aisles, and curb cuts at the east side of the Operations Garage and a second at the front of the Forest Headquarters.	-	-	-	-	-	X	-	-	-	-	-	-	-
Create an accessible pathway to connect the Men's and Women's bathrooms to the newly created accessible parking space at the Operations Garage.	-	-	-	-	-	X	-	-	-	-	-	-	-
Implement recommendations identified in <i>Rapid Assessment and Trail System Recommendations</i> (DCR 20015).	-	-	-	-	-	X	-	X	X	-	-	-	-
Establish an updated agreement with the King Philip Trail Riders for the use of off-road vehicles in F. Gilbert Hills, Franklin, and Wrentham State Forests.	-	-	-	-	-	X	-	X	X	-	-	-	-
Establish an agreement with the New England Mountain Bike Association to cover their special events and trail maintenance and repair activities.	-	-	-	-	-	X	-	-	-	-	-	-	-
Address dam deficiencies, as identified in GZA GeoEnvironmental, Inc. (2012a).	-	-	-	-	-	-	X	-	-	-	-	-	-
Replace the existing boardwalk between Teal Marsh and Kingfisher Pond.	-	-	-	-	-	-	X	-	-	-	-	-	-
Work with Mass Audubon to control poison ivy in portions on the Reservation in the immediate vicinity of the Nature Center, Sensory Trail, and Nature Play Area.	-	-	-	-	-	-	X	-	-	-	-	-	-
Install a gate on the fire and service road opposite 81 North Street, in accordance with the terms of the 2011 MOU.	-	-	-	-	-	-	X	-	-	-	-	-	-
Reopen main forest roads/trails to emergency vehicles by clearing brush and repairing heavily eroded areas.	-	-	-	-	-	-	-	X	X	-	-	-	-
Request that MassDOT replace fencing along I-495 to prevent recreationists from passing from the forest into the highway right of way.	-	-	-	-	-	-	-	-	X	-	-	-	-
Contact abutter along Beach Street, Wrentham regarding establishing an agreement to ensure continued hiker access along the 550-foot long segment of the Warner Trail that passes through their property.	-	-	-	-	-	-	-	-	X	-	-	-	-
Cover the Jones House Site's well in accordance with Archaeological Features BMP.	-	-	-	-	-	-	-	-	-	X	-	-	-
Stabilize the east wall of the Jones House Site's cellar hole to prevent further collapse.	-	-	-	-	-	-	-	-	-	X	-	-	-

Table ES.1. Summary of management recommendations for the Blue Hills Complex.

Recommendation	Complex	Blue Hills	Cutler Park	Wilson Mountain	Neponset River	F. G. Hills	Bristol Blake	Franklin	Wrentham	Rehoboth	West Bridgewater	Bridgewater	Borderland
Address dam deficiencies, as identified in GZA GeoEnvironmental, Inc. (2012 <i>b</i>).	-	-	-	-	-	-	-	-	-	-	X	-	-
Create barricades across the upstream and downstream slopes of the dam in a manner that prohibits OHV access while allowing for ongoing vegetation management.	-	-	-	-	-	-	-	-	-	-	X	-	-
Gate or otherwise block access points to stop illegal access by four-wheel drive vehicles and OHVs.	-	-	-	-	-	-	-	-	-	-	X	-	-
Conduct deed research to determine if the deeded right of way held by abutters at 0 Stoney Road includes parcels within the forest.	-	-	-	-	-	-	-	-	-	-	X	-	-
Work with commercial photographers to obtain the required permit for their commercial activity.	-	-	-	-	-	-	-	-	-	-	-	-	X
Develop and implement guidance on management activities for all dams and dikes in the park, in order to preserve the ponds as historic landscape features.	-	-	-	-	-	-	-	-	-	-	-	-	X
Assess Potential Vernal Pools and submit paperwork to NHESP for all pools meeting certification criteria. Examine trail segments near Certified Vernal Pools; relocate heavily used trail segments 50 or more feet from pools in accordance with guidance in NHESP (2015 <i>a</i>).	-	-	-	-	-	-	-	-	-	-	-	-	X
Provide ongoing maintenance, security, and oversight of activities at the Ames Mansion; maintain the associated historic landscape in accordance with the landscape rehabilitation plan (DCR 2011 <i>b</i>).	-	-	-	-	-	-	-	-	-	-	-	-	X
Establish a new agricultural concession to provide for the continued mowing of agricultural fields in order to preserve the Smith Farm's cultural landscape.	-	-	-	-	-	-	-	-	-	-	-	-	X
Establish formal legal agreements with the park's three major partners: Friends of Borderland; Friends of Borderland Disc Golf; and the New England Mountain Bike Association.	-	-	-	-	-	-	-	-	-	-	-	-	X
Work with MassWildlife to assess the white-tailed deer population and ascertain its impacts on the Park's natural and cultural resources; discuss deer management options if warranted.	-	-	-	-	-	-	-	-	-	-	-	-	X
Require all new trail projects, including disc golf paths, to undergo review and approval using the DCR Trail Proposal and Evaluation Form, and all trail maintenance activities to be reviewed for compliance under MESA and the Massachusetts Wetlands Protection Act.	-	-	-	-	-	-	-	-	-	-	-	-	X

a. These recommendations were originally made in the 2011 RMP for the Blue Hills Planning Unit; they meet current prioritization criteria and are included as recommendations in this RMP.



Boston, as viewed from the summit of Buck Hill, Blue Hills Reservation. (See Appendix K for photo information.)

SECTION 1. THE BLUE HILLS COMPLEX

1.1. INTRODUCTION

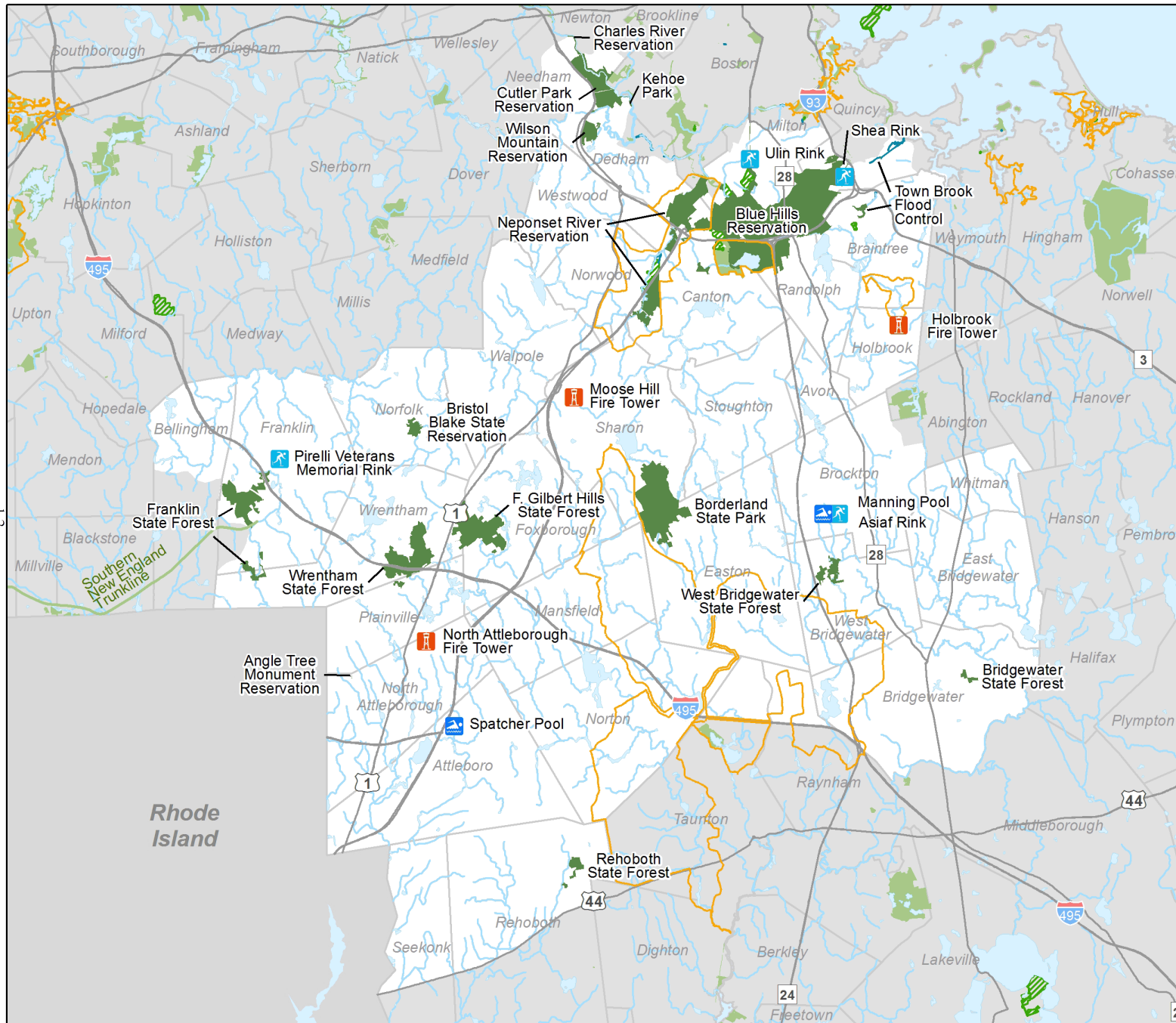
The Massachusetts Department of Conservation and Recreation (DCR) owns several properties south of Boston, in an area largely defined by Routes 95, 495, and 24. These properties, which are administered through the South Coast District, are collectively referred to as the Blue Hills Complex (i.e., the Complex). A map of properties that comprise the Complex is presented in Figure 1.1.1.

The area in which the Complex is located is ecologically, socially, and economically diverse. Populations range from fewer than 7,000 residents in West Bridgewater to more than 92,000 in Quincy. Some parks are located in small towns with an active agricultural presence (e.g., Rehoboth), while others are located in cities (e.g., Newton). Many are situated in bedroom communities for Boston and Providence. There is no common attribute that defines, nor sense of place that describes, this area. The Complex's parks are similarly diverse.

Parks within the Complex were acquired by a variety of state agencies, for a variety of purposes. Those closest to Boston were established by the Metropolitan Park Commission or its successor, the

Metropolitan District Commission (MDC). State forests within the Complex were established by the Department of Conservation, which later became the Department of Natural Resources (DNR). One property, Angle Tree Monument Reservation, was developed by the Department of Public Works; it was later transferred to the DNR. In 1975, the DNR became the Department of Environmental Management (DEM). Finally, in 2003, the DEM and MDC merged to create a single agency, the DCR.

The variety of controlling agencies and missions profoundly affected development of the Complex's parks. Their influence may be seen today in the variety of markers, architectural styles, and level of recreational development associated with individual parks. It may also be seen in the names used for these properties; Reservation primarily for former MDC properties and State Forest or State Park for former DEM properties. The Blue Hills Complex, therefore, represents a collection of parks with a common administrative structure, rather than a collection of parks with similar agency or management histories.



Blue Hills Complex

Figure 1.1.1

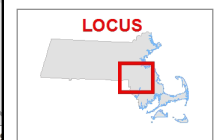
KEY

- DCR Properties in Complex
- Other DCR Properties
- ▨ Conservation Restrictions
- Other Legal Interest
- ACECs



0 1 2 3 4 5 Miles

Geographic information provided by
MassGIS and DCR GIS, 2016



1.2. RESOURCE MANAGEMENT PLANS

The DCR is required to prepare management plans for “all reservations, parks, and forests under the management of the department” (M.G.L. Chapter 21: Section 2F). These plans “shall include guidelines for the operation and land stewardship of the aforementioned reservations, parks and forests, shall provide for the protection and stewardship of natural and cultural resources and shall ensure consistency between recreation, resource protection, and sustainable forest management.”

This Resource Management Plan (RMP) provides an inventory and assessment of the environmental, cultural, and recreation resources; identifies current management practices and capabilities; and develops specific, implementable management recommendations to address the highest priority needs within the Blue Hills Management Complex.

Public Input

Public input is an important part of the RMP process. The legislative mandate that requires the preparation of management plans directs the Commissioner of the DCR to “seek and consider public input in the development of management plans, and ... make draft plans available for a public review and comment period through notice in the Environmental Monitor.”

There were two public input periods associated with the preparation of the Blue Hills Complex RMP; one at the start of the process and the second when the draft document was released. Both included public notification, posting in the Environmental Monitor, a public meeting, and a public comment period. Additional information on public participation in the development of this plan is provided in Appendix B.

Natural Heritage and Endangered Species Program (NHESP) Involvement

Under the Massachusetts Endangered Species Act (MESA) all “State agencies shall submit to NHESP any draft management plans they prepare for State owned lands on which State listed species are known to occur” (321 CMR 10.05(2)C.2). DCR coordinated with the NHESP throughout the planning process and submitted the internal review Draft RMP for review and comment as required by statute. Information on this coordination and review is presented in Appendix C.

During NHESP’s review, other MassWildlife personnel commented on aspects related to the ecology and management of game species. One set of comments, representing MassWildlife’s full range of interests, was submitted (French and Conlee 2016; see Appendix C).

Massachusetts Historical Commission (MHC) Involvement

State agencies must notify the Massachusetts Historical Commission (MHC) prior to undertaking a public project or funding or licensing a private project (950 CMR 71.04). Although management plans, such as RMPs, are not traditional projects and do not require submission of a formal Project Notification Form, DCR has elected to solicit comments in order to better protect the Commonwealth’s archaeological and historic resources. MHC’s comments are incorporated into the draft plan following the public comment period. Information on this coordination and review is presented in Appendix D.

Stewardship Council

Following public comment and revision, draft RMPs are submitted to the DCR Stewardship Council for review. Each draft RMP is presented at a public meeting of the Stewardship Council for their consideration. Once adopted, the RMP becomes final.

1.3. BLUE HILLS COMPLEX

This RMP covers the Blue Hills Complex, which includes 12 parks and a variety of properties and real assets that the DCR holds in fee. In addition, there are several properties in which the DCR holds legal interest or interest in regulatory review. (Figure 1.1) The term “park” is used generically throughout this RMP to refer to all manner of DCR parks, forests, and reservations.

Parks

The following 12 parks, and their associated properties, are included in the Blue Hills Complex:

- Blue Hills Reservation (Blue Hills)
- Cutler Park Reservation (Cutler Park)
- Wilson Mountain Reservation (Wilson Mountain)
- Neponset River Reservation (in part; upstream of Paul’s Bridge only)
- F. Gilbert Hills State Forest (F. G. Hills)
- Bristol Blake State Reservation (Bristol Blake)
- Franklin State Forest
- Wrentham State Forest
- Rehoboth State Forest
- West Bridgewater State Forest
- Bridgewater State Forest
- Borderland State Park (Borderland)

Each of these parks is covered in its own chapter, in Sections 2 through 13 of this RMP. Other properties, including connector parkways, rinks, pools, fire observation towers, and other real assets are only addressed in this section, as are DCR’s legal interests in non-DCR properties.

Connecting Parkway

The Metropolitan Park System of Greater Boston was designed as a series of reservations connected by parkways. These connecting parkways are linear parks that were originally designed as carriage roads intended to link and provide access to recreation areas (DCR 2007a). As the automobile emerged as

the primary means of transportation, parkways became increasingly integrated into the regional road network (DCR 2007a). Today, parkways serve multiple users, including drivers, walkers, runners, cyclists, and a variety of passive recreationists (DCR 2007a).

There are two connecting parkways partially within the Blue Hills Complex; the Blue Hills Parkway and the Furnace Brook Parkway. Both are associated with the Blue Hills Reservation. Within the Complex, the Blue Hills Parkway extends approximately 1.5 miles from Unquity Road, Milton, northward to the Neponset River. An additional 0.04 miles of parkway is located north of the Neponset River, outside the Blue Hills Complex and within the City of Boston. The Furnace Brook Parkway extends approximately 3.92 miles from Wampatuck Road, at the boundary of the Blue Hills Reservation, to Quincy Shore Drive, Quincy. Only 0.44 miles of this Parkway are within the Blue Hills Complex, which ends at the Southeast Expressway (I-93). Both parkways are historic, and include significant cultural resources. (Table 1.3.1.)



Blue Hills Parkway, Milton. (See Appendix K for photo information.)

Guidance on parkway planning, improvements, and maintenance is provided in *Historic Parkway Preservation Treatment Guidelines* (DCR 2007a). The types and frequency of ongoing maintenance activities are identified in Table 1.3.2.

Table 1.3.1. Cultural resources of Connecting Parkway within the Blue Hills Complex.

Parkway and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	MHC # ^e	Guidance ^f
Blue Hills Parkway (<i>National Register</i>)	SI	1823–1962	-	M	BOS.VF, MLT.U	1
Blue Hills Parkway Canton Avenue Circle	ST	1900	3	M	MLT.962	1
Pine Tree Brook Culvert ^g	ST	1962	3	M	MLT.961	1
Blue Hills Parkway Tree Allee	ST	1897–1903	3	M	MLT.960	1
Blue Hills Parkway Median	ST	1897–1903	3	M	MLT.959	1
Blue Hills Parkway ^h	ST	1897–1903	3	M	BOS.9493, MLT.955	1
J. McLean Mile Marker	ST	1823	3	H	MLT.958	1
Blue Hills Parkway Median Islands	ST	1897–1903	3	M	MLT.957	1
Mattapan Bridge ^h	ST	1901–1903	4	M	BOS.9429, MLT.945	1
Mattapan Veterans Memorial Monument ⁱ	OB	1920s	2	H	BOS.9747	1
Furnace Brook Parkway (<i>National Register</i>) ^j	SI	1904–1960s	-	M	QUI.AS	1
Furnace Brook Parkway Extension	ST	1904–1924	4	H	QUI.9801	1
Furnace Brook Parkway Tree Canopy	LA	Early 20 th c	-	M	QUI.9084	1
Furnace Brook Parkway Extension Greenspace Mitres (2)	ST	Early 20 th c	3	H	QUI.9087	1
Furnace Brook Parkway Extension Culvert ^g	ST	Mid-20 th c	3	M	QUI.9806	1
Furnace Brook Parkway Extension Mitres (2)	ST	Early 20 th c	3	H	QUI.9805	1
Furnace Brook Parkway – I-93 Rotary and Bridges ^g	ST	1960s	3	M	QUI.9082	1

- a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; SI = Site; and ST = Structure.
- b. Date of construction provided, when known.
- c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- d. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- e. Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.
- f. The following guidance is offered for the ongoing maintenance of these cultural resources:
 1. Refer to *Historic Parkway Preservation Treatment Guidelines* (DCR 2007a).
- g. These resources are identified as “non-contributing elements” in the National Register listings for the Blue Hills Parkway and Furnace Brook Parkway.
- h. These resources are partially located in the Castle Island Complex.
- i. This monument is located in the Castle Island Complex.
- j. Additional historic resources associated with this parkway are located in the Castle Island Complex.

Table 1.3.2. Annual cycle of management activities for the Blue Hills and Furnace Brook parkways.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Blue Hills Parkway				
Cleaning - Catch Basins	A	A	A	A
Litter removal	E14	E14	E14	AN
Mowing and trimming	E14/AN	E14/AN	E14/AN	N/A
Street Sweeping	E30	E30	E30	N/A
Trash - Empty Barrels	E7	E7	E7	E7
Furnace Brook Parkway				
Graffiti removal	AN	AN	AN	AN
Litter removal	AN	AN	AN	AN
Mowing and trimming	E7-14	E7-14	E7-14	N/A
Street Sweeping	E30	E30	E30	N/A

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

Other DCR Properties and Real Assets

Skating Rinks

There are four DCR-owned skating rinks; none are managed by the DCR. Information on these rinks is provided in Table 1.3.3. One additional rink, John P. Metropolis Skating Rink, was included in the RMP for the Blue Hills Planning Unit (DCR 2011). However, that rink is located within Ponkapoag Golf Course, which is now in a different complex, district, and region. For this reason, Metropolis Rink is not included in this RMP.

Max Ulin Skating Rink is located at 11 Unquity Road, Milton within the Blue Hills Reservation. It was constructed in 1952 and named in honor of Max Ulin, a former state senator and member of the Metropolitan District Commission (Chapter 152 of the Acts of 1952). The rink is leased by the Town of Milton and operated by Curry College. Its parking lot is almost exclusively used for the rink. See Section 2 for additional information on this rink.

The Mayor William T. Shea Memorial Rink is located at 651 Willard Street, Quincy. It was constructed in 1962 within the Blue Hills Reservation, and named through an Act of the Legislature (Chapter 204 of the Acts of 1962). It is currently operated by Michael B. O'Toole, Jr. LLC under an annual extension to a five-year permit issued in 2010. The rink's parking lots are also used by hikers and those using adjacent athletic fields and courts. See *Section 2. Blue Hills Reservation* for additional information on this rink.

The Representative John G. Asiaf Rink is located at 702 Belmont Street, Brockton. It is collocated with Manning Pool on the Brockton High School campus. The rink was constructed in 1968 and named in memory of John G. Asiaf, "a former member of the House of Representatives" (Chapter 242 of the Acts of 1967). It is operated by Facilities Management Corporation (FMC) under the terms of a 25-year Skating Rink Lease dated June 20, 2002. Parking is shared with Manning Pool and Brockton High School.

Table 1.3.3. Physical, political, and regulatory settings of skating rinks within the Blue Hills Complex.

	Ulin Rink	Shea Rink	Asiaf Rink	Pirelli Rink
Area (acres):	N/A	N/A	N/A	6.74
Management	Curry College	The O'Toole Company	FMC ^a	FMC ^a
Landscape Designation^b	Parkland	Parkland	None	Parkland
Legislative Districts:				
House	7 th Norfolk	1 st Norfolk	11 th Plymouth	10 th Norfolk
Senate	Norfolk, Bristol & Plymouth	Norfolk & Plymouth	Second Plymouth & Bristol	Second Middlesex & Norfolk
Regulatory Designations:	National Register District	None known	None known	None known

a. Facilities Management Corporation.

b. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

Staff Sergeant Robert Pirelli Veterans Memorial Rink is located at 910 Panther Way, Franklin. The land for the rink was sold to the Commonwealth by the Town in 1971, and the rink constructed in 1974. It was named in honor of Robert Pirelli, who was killed in the line of duty in Iraq (Chapter 33 of the Acts of 2008). It is operated by FMC under the terms of a 25-year Skating Rink Lease dated June 20, 2002. Parking is on site.



Pirelli Rink, Franklin. (See Appendix K for photo information.)

Swimming Pools

There are two swimming pools in the Complex, the Frank A. Manning Swimming Pool (Manning Pool) and the George I. Spatcher Swimming Pool (Spatcher Pool). (Table 1.3.4) Neither is managed by the DCR.

Table 1.3.4. Physical, political, and regulatory settings of swimming pools within the Blue Hills Complex.

	Manning Pool	Spatcher Pool
Area (acres):	3.3	3.2
Management	Brockton	Attleboro
Landscape Designation^a	None	None
Legislative Districts:		
House	11 th Plymouth	2 nd Bristol
Senate	Second Plymouth & Bristol	Norfolk, Bristol, & Middlesex
Regulatory Designations:	None known	None known

a. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

The DCR assists the cities of Attleboro and Brockton with staff training and facility maintenance. A 2011 Memorandum of Agreement

between the Massachusetts Department of Public Health (DPH) and the DCR specifies the steps that both parties will take “to facilitate compliance with 105 CMR 435.00: *Minimum Standards for Swimming Pools*” at all DCR-owned pools, including those not operated by the DCR. The DCR and DPH provide two days of training to municipal pool operators; this consists of one day of DPH inspection training and one day of pool administration and management training. The DCR helps municipalities correct deficiencies identified during DPH inspections by providing Park Support Operations (PSO) personnel to perform corrective measures. The DCR also provides a separate one-day course in pool management.



Manning Pool, Brockton. (See Appendix K for photo information.)

Manning Pool is located at 704 Belmont Street, Brockton. It is collocated with Asiaf Rink on the Brockton High School campus. The pool was constructed in 1972 and named in honor of Frank A. Manning, a former member of the House of Representatives and former Mayor of Brockton (Chapter 536 of the Acts of 1972). It received extensive renovations in 2006. The facility includes a swimming pool, spray deck, multi-component ADA accessible playground feature, and the following buildings and structures:

- Bathhouse
- Administration/Operations building
- Shade pavilion
- Shade shelters (2)

The high school's parking lots are used for both Manning Pool and Asiaf Rink.

Spatcher Pool is located at 79 North Avenue, Attleboro. It was constructed in 1973 and named in honor of George I. Spatcher, a former member of the House of Representatives (Chapter 92 of the Acts of 1973). The parcel on which the pool is located is surrounded on the north, east, and south by municipal recreation land (i.e., Hayward Field). The pool grounds include a swimming pool, wading pool, playground features, and the following buildings and structures:

- Buildings (3)
- Shade pavilion
- Shade shelters (4)

A dedicated parking lot includes 3 HP, and 30 other spaces. Additional parking, for approximately 60 vehicles, is located at Hayward Field. During the preparation of this RMP an unexecuted Memorandum of Agreement between the DCR and the City of Attleboro was identified; no executed agreements were located.

Angle Tree Monument Reservation

The boundary between the Massachusetts Bay Colony and the Plymouth Bay Colony was established in 1664. It extended from Hingham to Rhode Island, with only one bend in the line. This bend was located at “a certain old white oak tree, anciently marked, by some called the Station Tree, and by others called the Angle Tree” (Chapter 26 of the Acts of 1772–1773). In 1773, this line was declared the northern boundary for Bristol and Plymouth counties. Over time, the Angle Tree died and fell; it was replaced on November 29, 1790 with a nine-foot-tall slate monument known as the Angle Tree Monument.

In 1908 the Board of Harbor and Land Commissioners was directed to “take such measures as...may be necessary for the preservation” of the monument (Chapter 41 of the Resolves of 1908). In 1925, the Department of Public Works (DPW) was directed to acquire “such land as may be necessary to preserve and protect the Angle Tree Monument” (Chapter 289 of the Acts of 1925). This land, to be known as Angle Tree Monument Reservation, was to be owned by the Commonwealth and “under the joint control and management of, and shall be kept in proper condition and repair by, the towns of North Attleborough and Plainville.” The Commonwealth’s

interests were later transferred from the DPW to the DNR (Chapter 501 of the Acts of 1968).

Angle Tree Monument was placed on the National Register of Historic Places in 1976. In 1981 a brick building was constructed to house and protect the monument. This building is located partially on the reservation and partially on private land in Plainville. In 2001, the building was cleaned and restored, and the site improved.



Building at Angle Tree Monument Reservation; spring 2016. (See Appendix K for photo information.)

The Commonwealth has owned this 0.36 acre reservation at 659 High Street, Rear, North Attleborough since 1927 (Book 00774, Page 0294). In 1987, the Town of North Attleborough acquired an abutting 0.51 acre parcel (Book 3276, Page 0111). The DCR parcel is essentially a 990 foot long driveway from North Street to the building that houses the monument. The Town’s property, which is located just southeast of the monument, is used for visitor parking. An abutter uses approximately 355 feet of the park entrance road for residential access; no agreement was located for this use.

The reservation is entirely within the Seven Mile River (Orrs Pond) Outstanding Resource Waters area. No other regulatory designations were identified for this property.

Town Brook Flood Control Site

The waters of Town Brook originate in the Blue Hills Reservation and flow into Town Brook Flood Control Site (i.e., Old Quincy Reservoir) in Braintree (Chase 2006). From here, Town Brook flows through a highly artificial series of walled channels and an underground tunnel before reaching Town River Bay in Quincy.

The configuration of Town Brook is the result of the Water Resources Development Act of 1986, which authorized a federal flood protection project involving the Town River. The Town River Local Protection Project, as it was known, was conducted by the U.S. Army Corps of Engineers (ACOE) in association with the MDC. As part of this project, the MDC acquired eleven parcels in fee; they are identified in Table 1.3.5. In addition, the MDC obtained easements on 1.57 acres in Braintree and 15.55 acres in Quincy.

Table 1.3.5. DCR-owned parcels associated with Town Brook Flood Control Site.^a

Town	Address	Acres ^a	Landscape Designation
Braintree	0 Quincy Reservoir	64.56	Parkland
Quincy	101 School Street ^b	0.09	None
Quincy	105R School Street ^b	0.26	None
Quincy	107 School Street ^b	0.34	None
Quincy	113 School Street ^b	0.25	None
Quincy	119 School Street ^b	0.30	None
Quincy	129 School Street ^b	0.12	None
Quincy	37R Brackett Street	0.09	None
Quincy	00 Papile Lane	0.28	None
Quincy	23 Papile Lane	0.74	None
Quincy	35 Papile Lane	0.21	None
Total		67.24	

a. Approximate acreage (+/-), as reported in deeds.

b. Although the Quincy Assessor's office identifies these parcels as belonging to the MBTA, an Order of Taking by the MDC is recorded in Book 10067, Page 365.

Relocation of a 1,700 foot section of Town Brook is currently in development as part of the redevelopment of Quincy Center (Bartlett 2011). This relocation affects properties on which the DCR holds easements, but not land owned in fee.

Given its function, it is unsurprising that much of Town Brook is subject to flooding. Most of the property (51.33 acres, 79.94%) is within the 100-year flood zone. Approximately 1.30 acres, located at Town River Bay in Quincy, is subject to inundation from hurricane surge.

Fire Observation Towers

DCR's Fire Control Districts are based on counties; complex boundaries are not. As a result, the Blue Hills Complex includes portions of four Fire Districts: District 2 (Plymouth County); District 3 (Bristol County); District 4 (Norfolk County); and District 14 (South Middlesex County).

Within the Complex are two fire towers; one in North Attleborough (District 3) and the other in Sharon (District 4). Neither is located on DCR-owned property. (Table 1.3.6) The North Attleborough tower was constructed in 1972; it is located on Elmwood Street, Rear, within the City's World War I Memorial Park. (See Chapter 455 of the Acts of 1969.) A communications building is located near the base of the tower. The Sharon tower is located off Moose Hill Street, within the Massachusetts Audubon Society's (Mass Audubon's) Moose Hill Sanctuary; a tower has stood at this site since 1917. The presence and use of this tower is regulated via a 5-year lease agreement.

Table 1.3.6. Physical, political, and regulatory settings of fire observation towers within the Blue Hills Complex.

	Holbrook	North Attleborough	Sharon
Area (acres):			
Parcel (Acres)	0.46	N/A ^a	N/A ^b
Fenced-in Area (feet)	N/A	40 x 75	-
Perimeter (miles):			
	0.19	N/A	N/A
Landscape Designation^c			
	None	N/A	N/A
Legislative Districts:			
House	3 rd	14 th	8 th
	Norfolk	Bristol	Norfolk
Senate	Norfolk & Plymouth	Norfolk, Bristol, & Middlesex	Bristol & Norfolk
Regulatory Designations:			
	None known	None known	None known

a. Located on municipal property.

b. Located on private property.

c. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

There is no longer a fire tower in Holbrook, but DCR owns the 80 Pine Street parcel where the tower once stood. (Table 1.3.6) The fire tower was constructed in 1927 and dismantled in 2006; it is listed in MACRIS (HLB.906). Only concrete footings remain at the site, which now functions as a vegetated buffer between Pine Street and adjacent residences.

Legal Interests

In addition to real assets, DCR holds a number of legal interests in non-DCR properties. This includes Conservation Restrictions, access rights, and regulatory interests within Areas of Critical Environmental Concern.

Conservation Restrictions (CRs)

The Blue Hills Complex includes several private and municipal properties on which the DCR holds CRs. (Table 1.3.7.) CRs are legal instruments through which a landowner transfers a legal interest in the development of their property to the DCR. By acquiring these rights, the DCR is able to limit development. The DCR is currently prioritizing the monitoring of its conservation restrictions. Locations of CRs are depicted on the Complex map (Figure 1.1) and on individual property maps.

Table 1.3.7. DCR-held conservation restrictions for properties associated with the Blue Hills Complex.

Town	Owner	Acres ^a
Milton	Bartol	56.84
Milton	Boy Scouts - Camp Sayre	107.54
Braintree	Town of Braintree	10.41
Braintree	Town of Braintree	8.69
Canton	Codex Corporation	54.99
Canton	Homans	34.69
Canton	The Trustees of Reservations	125.78
Total		398.94

a. Approximate acreage (+/-), as reported in the conservation restrictions.

Access Rights

The DCR may hold easements or deeded rights of access on private lands that abut DCR-owned land. Information on known access rights is presented in individual chapters, as appropriate.

Areas of Critical Environmental Concern (ACECs)

ACECs are places in Massachusetts that receive special recognition because of the quality, uniqueness, or significance of their natural and cultural resources. The DCR has a statutory role in their stewardship. Within ACECs, the DCR shall “take actions, administer programs, and revise regulations in order to” acquire useful scientific data; preserve, restore, or enhance resources; and ensure that activities in or impacting the area

minimize adverse effects on seven specific resource values. (301 CMR 12.00; Appendix E)

There are five ACECs in the Blue Hills Complex; the DCR owns or holds a legal interest in properties within two of these. (Table 1.3.8) Their locations are depicted on the Complex map (Figure 1.1). Additional information on ACECs may be found at <http://www.mass.gov/eea/agencies/dcr/conservation/ecology-acec/acec-designations.html>.

Table 1.3.8. Areas of Critical Environmental Concern (ACEC) within the Blue Hills Complex, and DCR parks that occur within each ACEC.

ACEC	Park(s) within ACEC
Canoe River Aquifer	Borderland
Cranberry Brook Watershed	None
Fowl Meadow & Ponkapoag Bog	Blue Hills Neponset River
Hockomock Swamp	None
Three Mile River Watershed	None

1.4. NATURAL RESOURCES

Physical Features

The Complex is physically diverse. Several parks are hilly (e.g., Blue Hills), while those associated with river basins have relatively gentle relief (e.g., Bristol Blake). The underlying geology differs among and within parks; granites, sandstone, siltstone, slate, diorite, conglomerates, and even coal are present beneath the region. Historic quarries are present in two parks, and may also be present in a third.

Water Resources

The Complex’s parks are located in the following six watersheds:

- Blackstone
- Charles
- Narragansett Bay
- Neponset
- Taunton
- Weir River

Depending on the park, and the location within the park, water flows either northeastward toward Boston Harbor or southwestward toward Mount Hope Bay and Narragansett Bay in Rhode Island.

Three parks send water toward both Boston Harbor and Narragansett Bay.

Nearly all parks have flowing waters. Such waters are both ecologically and culturally significant. Many streams and rivers have been highly modified to control flood waters or power mills. Six parks currently have operational dams. (See Section 1.7 for additional information.) Several other parks may have had historic mills.

Flood Zones

Properties with rivers, streams, and wetlands may be subject to flooding. Flooding impacts vary among properties; the potential impacts of 100- and 500-year floods are addressed at the property level.

Hurricane Surge Inundation Zones

Only one property, Town Brook Flood Control Site, is located near the coast and predicted to be subject to storm surge associated with a hurricane. The potential impacts to Town Brook Flood Control Site were described above (Section 1.3). There is no other hurricane surge information in this RMP.

Climate Change

“Unequivocal evidence...shows that the atmospheric concentrations of important greenhouse gases...have increased over the last few centuries” (Cubasch et al. 2013:121). Associated with increased atmospheric CO₂ levels are: sea level rise, increases in temperature trends, changes in the frequency and intensity of extreme weather events, changes in the frequency and intensity of precipitation, and an increase in CO₂ and decrease in pH in oceans (U.S. Global Change Research Program 2014). Of these, only the projected impacts of sea level rise may be readily assessed at the park level. The projected impacts on fish and wildlife habitat are used as an indicator of overall climate impacts on natural resources. This information is presented by habitat type below, and is not included in individual park chapters.

Projected Sea-Level Rise

Potential impacts of sea-level rise were evaluated using information developed by the Intergovernmental Panel on Climate Change (IPCC; Church et al. 2013). The model used (i.e., RCP 8.5) predicts a 0.3m (12 inch) likely increase in global mean sea level over the next 30–50 years (i.e., from

present through 2046–2065). This model was selected because it considers the highest concentrations of gasses and aerosols of the four scenarios modeled by the IPCC; planning based on this model errs on the side of caution. A 30–50 year time frame was selected over the alternative 100-year time frame model, because of lower variability associated with predicted rise in likely mean sea-level. In addition, it is anticipated that this RMP will be revisited within the next 30 years, and that improved models will be available at that time to better predict sea-level rise in the second half of this century.

Only one property, Town Brook Flood Control Site, is susceptible to the impacts of climate change-related sea-level rise under this scenario.

Projected Impacts on Fish and Wildlife Habitat

Manomet and MassWildlife (2010) assessed the vulnerability of Massachusetts’ habitat types to climate change. Their results indicate two vulnerable and two critically vulnerable habitat types within the same geographic area as the Blue Hills Complex. Anticipated responses to climate change, by habitat type, are identified in Table 1.4.1.

Table 1.4.1. Predicted responses of habitat types to climate change.^a

Predicted Response^b	Habitat Type^c
Likely to Greatly Benefit	Southern/central hardwood forest
Likely to Benefit	Warm water ponds, lakes, and rivers
Less Vulnerable	Atlantic white cedar swamp Hardwood swamps Pitch pine-scrub oak Riparian forests Shrub swamp Vernal pools
Vulnerable	Emergent marshes Northern hardwood forest
Critically Vulnerable	Brackish marsh Intertidal mudflats and sandflats

a. From Manomet and MassWildlife (2010).

b. Predicted responses to climate change are: Likely to Greatly Benefit = Increase in extent; Likely to Benefit = Moderate increase in extent; Less Vulnerable = Either no change, or moderate change, in extent; Vulnerable = At risk of being greatly reduced in extent; and Critically Vulnerable = At risk of being eliminated or nearly so.

c. These habitat types are either known to occur, or are likely to occur, within the Complex.

Among the Vulnerable habitat types is emergent marshes. Several state-listed species are associated with this habitat type at Cutler Park Reservation, Neponset River Reservation, and West Bridgewater State Forest.

Rare Species

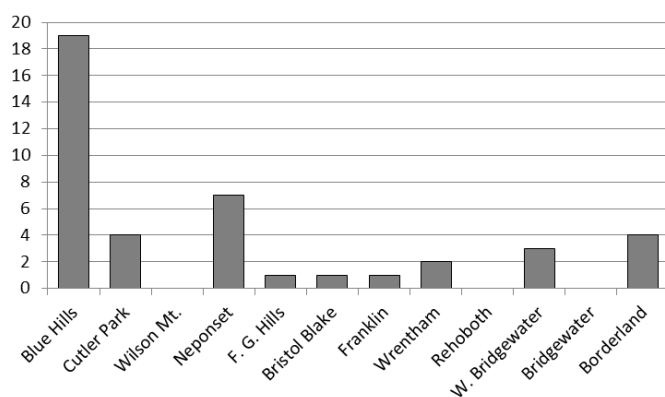
State-listed Species

Thirty-one state-listed species are documented from parks in the Complex. (Table 1.4.2) The number per park ranges from 0–19. (Figure 1.4.1) Twenty-two are known from only one park, six from two parks, one from three parks, and one from four parks. In addition, there are no state-listed species associated with Angle Tree Monument Reservation, Town Brook Flood Control Site, or the pools, rinks, and fire towers.

Table 1.4.2. Number of state-listed species, by type and state rank, known to occur on DCR-owned properties in the Blue Hills Complex.

Type	Endangered	Threatened	Special Concern	Total
Amphibians	0	1	1	2
Birds	1	1	2	4
Invertebrates	0	4	6	10
Plants	4	3	0	7
Reptiles	2	1	2	5
Data sensitive animal	1	2	0	3
Total	8	12	11	31

Figure 1.4.1. Number of State-listed species, by park.



The Complex's rare species may be generally categorized as associated with the following habitats:

- Wetlands and wetland complexes, including bogs, emergent marshes, and forested wetlands
- Dry, rocky hillsides

Additional information on rare species is presented at the property level.

Federally-listed Species

There are no federally-listed species known from the Complex's parks.

Priority Habitat

Priority Habitat is a regulatory term that refers to the geographic extent of habitat for species protected under MESA. Activities within Priority Habitat may require review under MESA. (See Section 1.10.) Three parks have no Priority Habitat, four have less than six percent of their area so designated and the remaining five parks have between 31.5% and 90.2% Priority Habitat. Additional information on Priority Habitat is presented at the property level.

Vegetation

Information on the parks' vegetation is inconsistent. Some parks (i.e., Blue Hills, Neponset River, and Bristol Blake reservations) have been well-documented; for others there is little to no information. Information on vegetation is summarized in individual chapters as available and appropriate.

Invasive Species

There is no complex-wide information. Available information is presented at the property level.

Priority Natural Communities

Natural communities are assemblages of plant species that occur together in space and time (NHESP 2016). The amount and quality of information on these communities varies greatly among parks. Verified information comes from the NHESP data set (Harper 2013). Supplemental site-specific data are provided when available. This information is presented at the property level.

Twenty-two communities are known from the Complex. Seven of these have state ranks of S1–S3,

and are considered Priority Natural Communities; they are:

- Atlantic White Cedar Bog (S2)
- Inland Atlantic White Cedar Swamp (S2)
- Open Talus/Coarse Boulder Community (S2)
- Ridgetop Pitch Pine-Scrub Oak (S2)
- Alluvial Red Maple Swamp (S3)
- Level Bog (S3)
- Woodland Vernal Pool (S3)

Additional information on these community types is available in a series of fact sheets at <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/natural-communities/natural-community-fact-sheets.html>.

Forests

DCR monitors its forests through an ongoing inventory process. Monitoring plots associated with the Continuous Forest Inventory (CFI) are located in former DEM properties. Information is incorporated into individual chapters as available and appropriate.

Wildlife

Site-specific information is largely lacking. However, a variety of resources are available for the region (e.g., Cardoza et al. n.d., Cardoza and Mirick 2009). Because bird watching is a popular recreational activity, information on birds is available for most parks; it is presented at the property level.

1.5. CULTURAL RESOURCES

The Complex's archaeological and historic resources reflect the region's Native American history, agrarian and subsequent residential and industrial development, development of early park and recreation facilities, institutionalized conservation, and cold war missile defense. A summary of the Complex's cultural resources is presented in Table 1.5.1.

An overview of the cultural development of the Blue Hills Complex is provided in Appendix F.

Table 1.5.1. Summary of cultural resources in the Blue Hills Complex.

Type	Number
National Historic Landmark	1
NR - Individually listed properties ^a	17
NR - Historic Districts ^a	1
MHC documented resources - Historic	85
MHC documented resources - Archaeological ^b	112
Verified resources not on NR or MHC inventories	208
Resources documented but unverified ^c	22

- Properties and districts listed in the National Register of Historic Places are automatically listed on the MHC inventory. For the purposes of this table, resources listed on the Register are not included among the number of MHC documented resources.
- Information on these resources is not publically available. Because of this, most are not listed in Cultural Resource tables in Sections 2–13. However, archaeological resources on the National Register are included in these tables.
- Resources reported through various sources, but not yet field verified or confirmed.

1.6. RECREATION RESOURCES

Collectively, the Complex's parks offer a broad variety of recreation activities. Common activities include dog walking, hiking, mountain biking, and nature study. Uncommon recreation activities and facilities include rock climbing, an off-leash dog area, one of three disc golf courses in the South Region, one of three downhill ski areas in the State's park system, and three of eight parks in the Commonwealth open to OHV use.

1.7. INFRASTRUCTURE

The amount and types of infrastructure vary among properties. In general, parks with administrative or operations facilities (e.g., Borderland) tend to be highly developed as do parks with recreation facilities (e.g., The Honorable Marie-Louise Kehoe Park).

Buildings and Structures

Dams and dikes are associated with many of the Complex's parks. (Table 1.7.1) A few are modern, but most are historic. In general, these dams are owned by the DCR, in poor condition, have multiple deficiencies, and are not being actively maintained. Detailed information on individual dams is presented at the property level; an overview is presented in Table 1.7.1.

Table 1.7.1. Dams and dikes of the Blue Hills Complex.

Name	National ID #	Municipality	Park/Facility	Jurisdictional ^a	Size Class ^b	Hazard Code ^c	Condition ^d	Owner ^e	Operator ^e
Unnamed dam ^f	N/A	Needham	Cutler Park	N	-	-	-	DCR	DCR
Pine Tree Brook Reservoir Dam	MA00824	Milton	Blue Hills	N	-	N/A	G	DCR	DCR
Pine Tree Brook Flood Control Dam	MA00825	Milton	Blue Hills	Y	L	S	S	Milton	Milton
Blue Hills Reservoir Dam	MA00826	Quincy	Blue Hills	Y	-	H	S	DCR	MWRA
St. Moritz Pond Dam	MA03373	Quincy	Blue Hills	N	-	N/A	F	DCR	DCR
Ponkapoag Pond Dam	MA03107	Canton	Ponkapoag Golf Course	Y	-	S	G	DCR	DCR
Sunset Lake Dam	MA03113	Foxborough	F. G. Hills	Y	I	S	P	DCR	DCR
Bristol Blake State Reservation Dam	MA00749	Norfolk	Bristol Blake	Y	I	S	F	DCR	DCR
Mirror Lake Dam ^g	MA02553	Norfolk	N/A	Y	-	S	-	Norfolk	Norfolk
West Meadow Dam ^h	MA01072	W. Bridgewater	West Bridgewater	Y	I	S	P	DCR	DCR
Borderland State Park Dam #1	MA03277	Sharon	Borderland	Y	-	L	P	DCR	DCR
Borderland State Park Dam #2	MA03178	Sharon	Borderland	Y	I	L	P	DCR	DCR
Borderland State Park Dam #3	MA03180	Sharon	Borderland	Y	I	L	P	DCR	DCR
Leach Pond Dam	MA03036	Sharon	Borderland	Y	I	L	P	DCR	DCR
Upper Leach Pond Dam	MA03037	Sharon	Borderland	Y	I	L	P	DCR	DCR
Upper Leach Pond Dike #1	MA03269	Sharon	Borderland	Y	I	L	P	DCR	DCR
Upper Leach Pond Dike #2	MA03270	Sharon	Borderland	Y	I	L	P	DCR	DCR
Upper Leach Pond Dike #3	MA03271	Sharon	Borderland	Y	I	L	P	DCR	DCR
Pud's Pond Dam	MA03038	Easton	Borderland	Y	I	L	P	DCR	DCR

- a. N = No, the dam or dike is not regulated by the DCR Office of Dam Safety (ODS); and Y = Yes, dam or dike is under the jurisdiction of the ODS (i.e., jurisdictional).
- b. Size Classes include: I = Intermediate; and L = Large.
- c. Jurisdictional dams are assigned one of the following hazard codes, based not on condition, but on potential impacts in the event of a dam failure: H = High; L = Low; S = Significant; and N/A = Not applicable.
- d. Condition Codes are: F = Fair; G = Good; P = Poor; and S = Satisfactory.
- e. Owner and Operator codes include: DCR = Massachusetts Department of Conservation and Recreation; Milton = Town of Milton; MWRA = Massachusetts Water Resources Authority; and Norfolk = Town of Norfolk.
- f. ODS Safety data indicate no dam at this location. However, Lynch (1973) indicated that the road along the eastern side of Kendrick Pond was constructed atop a dam. Visual inspection in 2015 indicated connecting culverts between the pond and the Charles River such that high water levels in the pond result in discharge to the river.
- g. The DCR holds a deeded interest in water flow through this dam, but neither owns nor operates it. (See Section 7 for additional information.)
- h. Although ODS records indicate DCR as the owner and manager, historic documents suggest an ownership and/or management interest by MassWildlife. See *Section 11. West Bridgewater State Forest* for additional information

Trails

There are three regional trails that connect to the Complex's parks; they are:

Claire Saltonstall Bikeway. This trail extends 135 miles from the Esplanade, in Boston, to downtown Provincetown. It passes along the Neponset River Reservation and through the Blue Hills. Maps of this bikeway are available at <http://www.masspaths.net/bikeways/ccbw/>.

Bay Circuit Trail & Greenway. This trail is actually a 230-mile-long network of trails that extend from

Plum Island, Newburyport, to Kingston Bay, Duxbury. It passes through Borderland State Park. Additional information may be found at <http://www.baycircuit.org/>.

Warner Trail. This 30-mile-long regional trail originates at Dedham Street, Sharon and ends in Diamond Hill State Park, Cumberland, Rhode Island. Along its path, it passes through Wrentham and F. G. Hills state forests. On Mass Audubon's Moose Hill Sanctuary in Sharon, the Warner Trail passes by the base of DCR's fire observation tower. Additional information may be found at <http://warnertrail.org/>.

1.8. INTERPRETATION

There is no Complex-wide interpretive programming. Instead, programming takes place at the property level. Parks with a Visitor Services Supervisor (i.e., the Blue Hills and Borderland) offer the most programs. These Supervisors, along with the Regional Interpretive Coordinator, provide occasional programming at other parks within the Complex. Partners and Friends groups also provide interpretive programming to visitors. Information on specific programming is presented by park.

1.9. MANAGEMENT RESOURCES

Administrative Structure

All parks in this RMP are part of the Blue Hills Complex. This Complex and the Fall River Heritage Complex jointly constitute the South Coast District; which is one of three districts in the DCR's South Region.

Staffing

Park management is a challenging task that requires expertise in a variety of disciplines. It is carried out by DCR staff, with supplemental support provided by state and municipal government employees, friends groups, and volunteers.

DCR Staffing

The operation and management of properties within the Complex requires the participation of regional and district personnel, as well as DCR staff from other bureaus and offices. Day to day management primarily involves DCR personnel at the region, district, and complex level.

Region. Administrative, clerical, and support functions are performed by personnel located in the regional office in Carver. The Regional Director performs a variety of administrative functions, including supervision of regional staff and District Managers. Clerical and fiscal support (e.g., procurement, payroll, processing seasonal employee paperwork) is provided by the regional Business Management Specialist, Clerk, and Administrative Assistant. A regional mechanic services and repairs vehicles within the Complex.

District. The South Coast District Manager reports to the Regional Director, and is responsible for the management of all properties, and supervision of all

Field Operation Team Leaders, within the District. The South Coast District includes two complexes, the Blue Hills Complex and the Fall River Heritage Complex.

Complex. Each complex has a Field Operations Team, comprised of all personnel from properties within that complex, and one Field Operations Team Leader. (FOTL; Table 1.9.1) There are 17 year-round positions; one is currently vacant. The FOTL has the ability to allocate resources within the Complex in order to improve park operations. Resources may also be reallocated on a temporary basis to assist with special projects that require staffing, skill sets, or equipment unavailable at any one park.

Park Rangers and Visitor Services Supervisors are not part of the Field Operations Team, but are based at properties within the Complex and work closely with the team to advance the agency's mission. A Regional Interpretive Coordinator, based at the Regional Office in Carver, oversees the Visitor Services Supervisors and conducts interpretive programming in the Complex. Bureau of Forestry and Fire Control personnel work closely with field staff to detect and suppress wildfires, promote fire safety, and help maintain fire breaks and roads. There is one Fire Warden, five Laborer I, and one State Firefighter positions per Fire Control District.

Table 1.9.1. DCR personnel assigned to the Blue Hills Complex.

Job Title	Number of Positions^a
<i>Year-round Personnel</i>	
Administrative Assistant II	1
District Manager ^b	1
Forest and Park Regional Coordinator (Field Operations Team Leader)	1
Forest and Park Supervisor I	2
Forest and Park Supervisor II ^c	4
Forest and Park Supervisor III	1
Laborer I	2.5
Ranger I ^b	1
Ranger II ^b	2
Recreation Facilities Supervisor I	0.5
Recreation Facilities Supervisor III	1
Visitor Services Supervisor ^b	1
<i>Seasonal Personnel^d</i>	
Forest and Park Supervisor I (Long-term)	4
Forest and Park Supervisor I (Short-term)	1
Forest and Park Supervisor II (Long-term)	1
Laborer I (Long-term)	4
Laborer I (Short-term)	8
Laborer II (Short-term)	1
Lifeguard I (Short-term)	15
Lifeguard II (Short-term)	2
Office Support Specialist (Long Term)	1
Ranger I (Long Term) ^b	3
Ranger I (Short Term) ^b	1
Recreation Facility Repairer (Long-term)	1
Recreation Facility Supervisor I (Short-term)	1
Summer Worker (Short-term)	1
Visitor Services Supervisor (Long Term)	1

a. Number of position is based on 2016 staffing levels.

b. These positions are not part of the Field Operations Team, but provide direct support of parks within the Complex.

c. One of these positions has been vacant since 2014.

d. Long-term seasonal positions begin prior to the second Sunday before Memorial Day; short-term seasonal positions begin after that date.

Partnerships and Volunteers

There are no Complex-wide organized partnerships or volunteer programs, but there are two friends groups associated with three parks within the Complex. There is also an advisory committee associated with three state forests. Information on these groups is presented by park. There are no formal agreements with these groups.

Public Safety

The Massachusetts State Police has primary law enforcement authority on state-owned lands. Local police provide additional law enforcement within their respective jurisdictions. The Massachusetts Environmental Police provide primary enforcement of hunting, fishing, boating, OHV, and snow vehicle regulations.

Fire control is provided by local fire departments with assistance from DCR's Fire Districts 2, 3, 4, and 14. Municipalities also provide emergency medical response. Rangers, lifeguards, and other trained DCR personnel may provide first aid.

Park Operations

DCR personnel perform a variety of activities related to the operation and maintenance of the Complex's resources and facilities. These activities differ among parks and, within each park, differ from day to day and among seasons. However, general routines are followed.

Buildings and grounds related activities include: cleaning, painting, minor carpentry, electrical and plumbing tasks, mowing grass, removing leaves, picking up litter, emptying trash barrels, and graffiti removal.

Visitor services related activities include: ParksPass sales and processing, providing interpretive programming, responding to visitor questions, ensuring public safety, and promoting awareness of park regulations and enforcing those regulations.

Administrative activities include: employee scheduling and supervision, report preparation, revenue processing, coordinating volunteer activities and special events, and budget preparation.

General Budgetary Information

Typical Funding

Three major types of funds support the operations, maintenance, and capital improvement of DCR facilities. They are:

Operating Budget. The annual operating budget supports daily operations and maintenance including utilities, supplies, equipment leases, administration, and the maintenance and minor repair of facilities, vehicles, and equipment.

Capital Budget. This supports projects (e.g., construction, repair) and items (i.e., equipment) with a per-unit cost of at least \$5,000 and an expected lifespan of at least seven years. They are identified and funded through a five-year capital plan. These plans identify proposed capital projects, their costs, and the year in which they are to be funded. Recent examples within the Complex include upgrades to athletic fields and the construction of a new bathhouse and comfort station at the Blue Hills Reservation.

Deferred Maintenance. These funds are used for infrastructure repair that exceed typical maintenance, but do not rise to the level of a capital project. They may also be used to address emergency capital projects for which funds have not been programmed. Each region is allotted deferred maintenance funds on an annual basis; the Regional Director determines how these funds are to be expended. Recent examples within the Complex include repairs or upgrades to bathrooms at F. Gilbert Hills and Borderland, upgrades to lighting at Borderland's main parking lot, and repairs to the boardwalk at Cutler Park.

Supplemental Funding

In addition to operations, capital, and deferred maintenance funds, DCR facilities may receive funding through other sources including grants, legislative earmarks, the Conservation Trust Fund (e.g., donations placed into "iron rangers," secure metal donation boxes), dedicated funds associated with individual properties (e.g., telecommunication tower fees), retained revenues (e.g., day use fees), and in-kind contributions.

1.10. MANAGEMENT PRACTICES

Management of the Complex's natural, cultural, and recreation resources is complicated and subject to a variety of laws, regulations, policies, and agreements. It is also subject to available resources and staffing. This section describes current management practices and identifies relevant regulations, other legal considerations, and policies that guide this management. Select Massachusetts regulations are presented in Appendix E.

Natural Resources

Best Management Practices

The Bureau of Planning, Design & Resource Protection has developed a series of Best Management Practices (BMPs) for guiding common park activities with the potential to affect natural or cultural resources. At present there are 7 natural resources BMPs available. They are available at <http://www.mass.gov/eea/agencies/dcr/conservation/planning-and-resource-protection/best-management-practices.html>.

Research Permits

Research Permits are required for all ecological research on DCR properties. Additional state and federal permits may be required, depending on the nature and location of research. Research within wetland and river jurisdictional areas may also require regulatory review and approval from the local conservation commission.

Water Resources

Sanitary Waste. The sub-surface disposal of sanitary wastes is regulated by a variety of regulations, including Title 5 of the State Environmental Code (310 CMR 15:00), Underground Injection Control regulations (310 CMR 27:00), and groundwater discharge permits (314 CMR 5.00). These regulations apply to all septic systems in the Complex.

Storm Water Management. Activities on DCR properties that affect the quantity or quality of storm water are regulated by a National Pollutant Discharge Elimination System (NPDES) storm water management plan (DCR 2007b). This plan describes control measures that the DCR uses to satisfy NPDES Phase II permit requirements for transportation and non-traditional Municipal Separate Storm Sewer Systems (MS4s). Although emphasis is placed on parks in the Greater Boston area, the plan is applicable to the entire DCR park system. For additional information see <http://www.mass.gov/eea/agencies/dcr/conservation/stormwater-mgmt/>.

Outstanding Resource Water (ORWs). ORWs are designated based on their "outstanding socio-economic, recreational, ecological and/or aesthetic values." Discharges to these waters are regulated by

Massachusetts Surface Water Quality Standards. (314 CMR 4:04(3); Appendix E) Four of the Complex's parks are entirely or partially located within an ORW.

Wetlands. Activities within a wetland resource area or buffer are regulated by the Massachusetts Wetland Protection Act. (310 CMR 10:00; Appendix E) A BMP is available to help field operations personnel comply with these requirements.

Vernal Pools. Certified vernal pools are protected under a variety of state laws, including the Wetlands Protection Act, Title 5 of the State Environmental Code, and the Massachusetts Forest Cutting Practices Act. A BMP on vernal pool certification on DCR lands is available.

Rare Species

MESA protects rare species and their habitats by prohibiting the "take" of any plant or animal listed as Endangered, Threatened, or Special Concern (http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/mesa/mesa_home.htm). Projects within identified Priority Habitat of rare species must undergo review by the NHESP, unless otherwise exempted under the law. (See 321 CMR 10:00 for the full definition of "Project.") Many staff and volunteer activities that take place within the Complex (e.g., invasive species removal, trail work) meet the definition of Project and must go through regulatory review if they are to occur in Priority Habitat.

State agencies have the following special obligations under MESA:

- Use their authorities in furtherance of the purposes of MESA and "use all practicable means and measures to avoid or minimize damage."
- Submit draft management plans, such as RMPs, to the NHESP for review.
- State-owned lands "that provide habitat for state-listed species shall be managed for the benefit of such listed species;" agencies "shall give management priority to the protection, conservation, and restoration of" state-listed species on state-owned lands. All "practicable means and measures shall be taken to resolve conflicts between the protection, conservation, and restoration of state-listed species ... and

other uses of such lands in favor of the listed species."

These requirements guide operations activities in, and planning activities for, Priority Habitat in the Complex.

Vegetation

There is no single management plan for the Complex's vegetation. The *de facto* management policy is to permit populations of most species of plants to increase or decrease without human intervention. Exceptions include the maintenance of lawns, recreation fields, and other turf areas; fire break maintenance and management; removal of hazardous trees; removal of plantations of non-native trees; timber harvests; road and trail maintenance; removal of non-native or invasive plants; and vegetation cutting associated with the management of plant or wildlife habitat.

Invasive Species. Continuous Forest Inventory (CFI) sampling protocols include the recording of invasive species observed within sampling plots (DCR 2010a). There are no other Complex-wide monitoring or eradication efforts.

Forests. A total of twenty-six CFI monitoring plots are located in six parks within the Complex. A series of forestry related metrics, including the number of trees five or more inches in diameter, tree regeneration, amount of coarse woody debris, presence of invasive plants, and presence of tree diseases are collected at each plot. On average, each plot is visited, and data collected, once every ten years.

Wildlife

There is no single wildlife management plan for the complex. The *de facto* management policy is to permit most wildlife populations to increase or decrease without human intervention. Exceptions include rare species management; fishing; and the hunting of game species. (See Recreation Resources: Hunting and Fishing, below.)

Cultural Resources

The DCR's Office of Cultural Resources (OCR) provides technical assistance on issues relating to the preservation of the agency's vast and diverse portfolio of cultural resources. A copy of the DCR

Cultural Resources Policy has been included as Appendix G.

The OCR is also responsible for overseeing the historic preservation and regulatory compliance responsibilities of the agency. It assesses regulatory needs and, when applicable, notifies the MHC through the filing of a Project Notification Form or Environmental Notification Form for any proposed projects undertaken, funded, permitted, or licensed in whole or in part by the agency. This is done so that the MHC may make a Determination of Effect of the project on archaeological and historic resources. Projects may be large or small and involve any level of impact on an above or below ground cultural resource. Finally, the OCR coordinates all archaeological survey, testing, and excavation with the State Archaeologist at the MHC through an archaeological permit.

OCR defines a cultural resource as a district, site, building, structure, landscape, object, or ethnographic resource that is at least fifty years old and has important historical, cultural, scientific, or technological associations. Cultural resources also include pre-historic or historic archaeological sites containing physical remains or indications of past human activity and/or any artifacts that have been constructed or manipulated by human influence and holding potential significance for understanding past, present, or future human behavior.

There are a number of different designations for individual cultural resources and districts in Massachusetts; including local designation, inclusion on the statewide inventory, listing in the State Register of Historic Places, listing in the National Register of Historic Places, and designation as a National Historic Landmark. Although these designations indicate different levels of significance and compliance, for the purposes of DCR's cultural resource policy and statutory requirements, projects involving any of these resources may require review and approval by, and/or consultation with, the MHC.

Best Management Practices

In order to provide technical support to field operations staff, OCR has developed a series of BMPs to guide the day-to-day management of common cultural resources in our state parks. At present there are 14 cultural resources BMPs available. (See

<http://www.mass.gov/eea/agencies/dcr/conservation/planning-and-resource-protection/best-management-practices.html> for these BMPs.) Although many of these practices may be performed without any level of statutory review or compliance, it is important to coordinate with OCR staff in order to determine whether any compliance is required. This is especially important with resources or districts that are designated at the local level, as these designations carry specific guidelines that may differ from those at the state level. BMPs applicable to specific resources are identified under "Guidance" in Cultural Resources tables in Sections 2–13.

Archaeological Resources

Massachusetts law requires the review of all sub-surface disturbances on state property. The DCR's archaeologist holds a general archaeology permit from the MHC that allows them to provide initial review of activities that result in sub-surface disturbance. The DCR archaeologist is the primary reviewer of such projects and activities in the Complex.

Underwater Archaeological Resources. The inspection, investigation, or removal of underwater archaeological resources is regulated under Massachusetts law (M.G.L. 6:179–180). No person may remove, displace, damage or destroy any underwater archaeological resource except in conformity with permits issued by the Massachusetts Board of Underwater Archaeological Resources (BUAR). This applies to both coastal and inland waters. Additional information is available at <http://www.mass.gov/eea/agencies/czm/buar/>.

Native American Hunting, Fishing, and Gathering Rights. Most Native American tribes and indigenous groups have the inherent right to be self-governing, including regulating their landscapes and resources. The right to hunt and fish was guaranteed to many tribes in their treaties with the United States and it is presumed to exist even if not mentioned in the treaty.

The rights to hunt, fish, and gather include the use of modern techniques for obtaining wildlife. A tribe is limited only by two rules, other than those it creates for itself. First, the tribe cannot take so much wildlife that it endangers propagation (continuation) of the species in violation of state or federal

conservation laws. Second, the tribe cannot take any wildlife that Congress has prohibited it from taking.

Ceremonial Stone Landscapes. These landscapes of sacred significance are characterized by altered or moved stones. “Whether these stone structures are massive or small structures, stacked, stone rows, or effigies, these prayers in stone are often mistaken...as efforts of farmers clearing stones for agricultural or wall building purposes” (USET 2007). The National Register of Historic Places has acknowledged ceremonial stone landscapes as culturally significant to federally recognized tribes in the Northeast, pursuant to the tenets of the National Historic Preservation Act. Protocols for determining National Register eligibility for ceremonial stone landscapes is still developing. Additional research is warranted. Recording, listening, and making connections to oral histories, mapping ceremonial sites, researching early colonial land deeds, and developing an on-going communication with local tribes can also inform DCR management of these resources.

Within DCR’s forests and reservation are thousands of stone features and land forms of unknown origin and association. For the purposes of clarification, these sites have been inventoried and marked as archaeological sites of an “unknown” type, as opposed to “pre-Contact” or “post-Contact” sites. Further research may eventually reveal a cultural significance to these sites. For now, they are to be protected under DCR’s policy for cultural resources along with other identified archaeological sites in the Commonwealth.

Recreation Resources

Regulations guiding the recreational use of forests and parks may be found in 302 CMR 12.00. Key aspects of these and related regulations are identified below.

Activities Requiring Permits

Some recreational activities require either Special Use or Recreational Use permits. Special Use Permits are required for special activities and events such as concerts, charity walks, and community service projects. Recreational Use Permits are required for all group activities involving 25 or more people, and for such things as the use of pavilions, group use areas, and athletic fields and courts.

Additional information on these permits, and how they may be obtained, is available on DCR’s web page

(<http://www.mass.gov/eea/agencies/dcr/massparks/permits-rentals/dcr-permits.html>). Permits are also required for commercial activities (e.g., concessions, professional dog walking), film production, and commercial photography.

Swimming and Beach Use

Swimming is restricted to designated swimming areas. People, pets, and domesticated animals are prohibited from entering sensitive beach habitat posted as restricted. Pets and domesticated animals are prohibited from designated swim areas of inland beaches between April 1 and September 15. Additional rules of conduct may be found in 302 CMR 12.06.

Boating

Boating is regulated through a variety of Massachusetts Regulations (i.e., 323 CMR 2.00, 323 CMR 4.00, and 312 CMR 12; Appendix E). Allowed uses vary among parks and watercraft type; specific restrictions are identified in 302 CMR 12.07. Specific restrictions apply to several of the complexes’ properties. See Sections 2–13 for specific information.

Camping

There are no DCR campgrounds within the Complex. Cabins and tent platforms are available from the Appalachian Mountain Club at one property. Additional information is provided in *Section 2. Blue Hills Reservation*.

Hunting and Fishing

Hunting, fishing, and trapping are regulated through Massachusetts Regulations (321 CMR 3.00 and 321 CMR 4.00), DCR Parks and Recreation Rules (302 CMR 12.11), official Massachusetts Hunting, Freshwater Fishing, and Trapping Regulations that are promulgated annually. Summaries of these and other applicable regulations are presented in Appendix E. Officers from the Executive Office of Energy and Environmental Affairs’ Office of Law Enforcement (i.e., Massachusetts Environmental Police officers) enforce hunting, fishing, and OHV regulations.

All DCR properties are presumed to be open to hunting, fishing, and trapping unless otherwise specified in the Parks and Recreation Rules (302 CMR 12.11). Within the Complex, hunting and trapping are specifically prohibited or restricted at six parks. Park-specific information is provided in Sections 2–13.

Trail Use

General trail use is regulated through 302 CMR 12.00. The same regulations govern the use of horses and non-motorized vehicles on trails. Dogs may accompany trail users provided the animals are kept under control and do not interfere with any other park patron's enjoyment of DCR property. (302 CMR 12.13; Appendix E) Exceptions apply for service, hunting, and sled dogs.

With the exception of DCR, public safety, and utility company vehicles, motor vehicles are generally not permitted on trails in the Complex. OHVs are allowed in three of the Complex's forests. See Sections 6, 8, and 9 for additional information.

A March 15, 2011 Department of Justice ruling allows individuals with mobility disabilities to use "other power-driven mobility devices" on trails. Such devices include any device powered by batteries, fuel, or other engines that are used by individuals with mobility disabilities for the purpose of locomotion. Use of such devices may be restricted on trails due to factors such as: the type, size, weight, and speed of the device; the volume of pedestrian traffic; and the potential for substantial risk of serious harm to the environment or natural and cultural resources. No trails within the Complex have been assessed for their compatibility with these devices.

Geocaching

There is no Massachusetts regulation or agency policy on the placement of geocaches on DCR property. A BMP for managing the placement of geocaches on DCR properties has been in development for several years.

Infrastructure

Property Boundary

The Management Forester attempts to locate and mark property boundaries every 15 years. They also mark the boundaries of new properties as they are

acquired. Boundary marking typically involves locating and painting cement bounds or pipes, and the posting of boundary signs. The Forest and Park Supervisor at F. G. Hills monitors and marks the boundaries of properties under his control.

Buildings and Structures

The management of DCR-owned buildings is performed by DCR employees or contractors. Minor maintenance and repair is performed by on-site staff. More technical repairs (e.g., plumbing, electrical) are performed by DCR in-house trades staff or by trade or engineering contractors whose activities are coordinated through DCR's PSO Program. Major repairs are performed solely by licensed contractors.

Roads

The DCR maintains and repairs park roads and parkways. Management of traffic and related systems is supervised by the Parkways Section of the DCR's Engineering Bureau, and guided by American Association of State Highway and Transportation Officials standards; the Manual on Uniform Traffic Control Devices (MUTCD; FHA 2009); and the *Historic Parkway Preservation Treatment Guidelines* (DCR 2007a), if applicable. Public roads adjacent to DCR properties are maintained and repaired by either local municipalities or MassDOT.

Snow removal is performed by the DCR, MassDOT, and local municipalities. In general, municipalities or MassDOT plow public roads adjacent to parks and the DCR is responsible for plowing internal park roads.

Parking

The DCR is responsible for maintaining and repairing its parking areas. Most snow removal is performed by the DCR.

Multi-Use Paths

Ongoing maintenance and repair of paved and unpaved multi-use trails may be subject to review under a variety of environmental regulations (e.g., MESA, Wetlands Protection Act).

Trails

A variety of regulations and policies guide the management of trails. The design, management, and marking of trails are guided by the DCR's *Trails*

Guidelines and Best Practices Manual (DCR 2014a). In addition, BMPs address the closing and restoring of trails and trail maintenance (DCR n.d.e, n.d.f). Trail work is subject to both 950 CMR 70 (Appendix E) and the DCR Cultural Resource Policy (Appendix G).

Many trails in the Complex are located within Priority Habitat; all work on these trails must be reviewed and pre-approved by the NHESP. In order to avoid individual filings for every trail maintenance project, the DCR and NHESP produced a statewide assessment of areas of conflict between rare species and their habitats, and recreational trail maintenance activities (NHESP 2015). This assessment identifies specific maintenance activities that may take place on specific trail segments without additional NHESP review, and combinations of activities and locations that require full review. All maintenance activities must be performed in accordance with the guidance and restrictions contained in this assessment (NHESP 2015).

Additional regulations, such as the Massachusetts Wetlands Protection Act may also apply, depending on location. These regulations and policies apply to DCR employee, partner, and volunteer activities. If work is to be performed by volunteers it must also be consistent with DCR volunteer guidelines (DCR 2014b).

Kiosks and Signs

The format and placement of regulatory and informational signs are governed by the MUTCD (FHA 2009) and guided by the DCR *Graphics Standards Manual* (DCR n.d.g). The design and construction of kiosks are solely governed by the graphics manual.

Informational kiosks are managed by park staff as new information becomes available; they also perform kiosk installation and repair.

Memorials and Markers

The placement or removal of memorials and plaques is prohibited unless authorized by the DCR. (302 CMR 12.04(26); Appendix E). Notable markers in the Complex, such as those identifying properties on the National Register of Historic Places, are identified in the individual chapters. Other markers,

such as memorial benches or gardens, are not identified.

Land and Water Conservation Fund

Park lands acquired or developed with funding from the Land and Water Conservation Fund, a federal program administered by the National Park Service (NPS), must comply with a variety of requirements. This includes keeping the property boundary intact, using the property for outdoor recreation purposes, inspections by the NPS at least once every five years, and the posting of signs acknowledging the financial support of the Land and Water Conservation Fund. A full listing of program requirements is provided in NPS (2008). Properties acquired or developed with LWCF funds are identified in Table 1.10.1.

Table 1.10.1. Parks and facilities within the Blue Hills Complex funded through the Land and Water Conservation Fund.

Park or Facility	Year	Amount (\$)
Blue Hills Reservation	1966	2,809.45
Blue Hills Reservation	1968	342,601.60
Borderland State Park	1971	600,000.00
Manning Pool	1972	220,423.10
Spatcher Pool	1972	187,500.00

Management Resources

Volunteers

Volunteer activities in parks must be consistent with DCR guidelines (DCR 2014b), including completion of a Volunteer/Stewardship Agreement. Additional information may be found at: <http://www.mass.gov/eea/agencies/dcr/get-involved/volunteer-ops/dcr-volunteer-in-parks-program-guide.html>.

Landscape Designations

The types of activities that may take place on DCR parks are also guided by DCR's landscape designations. Lands are designated as Reserve, Parkland, or Woodland; each "has its own set of ecosystem services and management priorities" These designations influence such things as forestry practices and the types and level of allowable recreation. (DCR 2012a). Readers are directed to *Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines* (DCR 2012a) for details on how these designations

affect park use and management, and for maps. The number of acres of Reserve, Parkland, and Woodland in each park is presented in DCR (2012b).

Land Stewardship Zoning

At the property scale, management guidance is developed and applied through the resource management planning process. All areas within a park are placed into one of three Land Stewardship Zones (LSZs). These zones ensure resource protection based on site-specific field data, and provide guidance for current and future management based upon resource significance and sensitivities. These zones may be briefly categorized as follows:

- Zone 1 encompasses areas with highly sensitive natural and cultural resources that require special management approaches and practices to protect and preserve their special values.
- Zone 2 encompasses stable yet important natural and cultural resources. Within this zone, public recreation may typically be managed at sustainable levels.
- Zone 3 encompasses already developed landscapes or areas that may be suitable for future development as intensive use areas.

Land Stewardship Zoning is applied in a manner consistent with a property's Landscape Designation(s). Detailed information on the relationship between Land Stewardship Zones and

Landscape Designations may be found in Appendix 4 of DCR (2012a).

LSZs may be supplemented with Significant Feature Overlays that identify resources with specialized management needs. Every major property within the Complex (i.e., Sections 2–13) has been zoned; only about half of the properties have a Significant Feature Overlay.

1.11. RECOMMENDATIONS

Three priority management recommendations were developed for the entire Blue Hills Complex. (Table 1.11.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

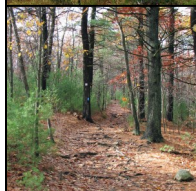
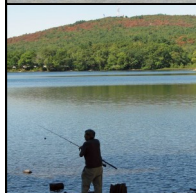
The following recommendations are of equal priority.

Table 1.11.1. Priority management recommendations for the Blue Hills Complex.

Recommendation	Implementation ^a
Conduct regular monitoring of properties in which the DCR has a legal interest (i.e., conservation restriction, easement) for consistency with agreements.	P, R, V
Brief field operations personnel about their role in dam maintenance, and develop and implement a systematic, Complex-wide approach to dam maintenance to be performed by the Field Operations Team.	D, P, R
Contact the Office of Cultural Resources before starting any project beyond those described in the BMPs that may impact cultural resources identified in this RMP.	P, R

a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.

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Blue Hills Reservation

Blue Hills Reservation is the largest, and one of the oldest, parks in metropolitan Boston. For over a century, it has provided visitors the opportunity to get back to nature in the shadow of downtown Boston. Visitors come to enjoy the more than 100 miles of forested trails, beat the summer heat with a day at Houghton's Pond, learn about native wild-life at the Trailside Museum, enjoy a picnic while taking in a view of the Boston skyline, play youth league sports on one of the many ball fields, or learn to ski or ice skate.

Top Attractions

- Blue Hill Observatory
- Blue Hills Trailside Museum
- Houghton's Pond Recreation Area
- Ponkapoag Bog boardwalk
- Ricciuti Drive athletic fields
- Shea and Ulin Rinks
- Trails network
- William F. Rogers Ski Area

Friends Group

- Friends of the Blue Hills
<http://www.friendsofthebluehills.org>

Partners & Permittees

- Appalachian Mountain Club
- Blue Hill Observatory & Science Center
- Brookwood Community Farm
- Massachusetts Audubon Society
- YMCA of Greater Boston

Conservation Opportunities

- Balance recreation with natural resources conservation, especially the protection of rare species.
- Enhance conservation of the reservation's numerous historic buildings and structures.
- Preserve the visitor experience at Houghton's Pond Recreation Area in light of the facility's increasing popularity.
- Reduce the volume and speed of vehicle traffic on park roads for the benefit of pedestrians, bicyclists, and state-listed species.

Park Inventory

Date Established: 1893

Landscape Designation
Parkland

Current Staffing

Year-round: 10
Seasonal: 36

Park Size (acres)

Total Area: 5,782.2
Wetlands: 717.9
Lakes and Ponds: 275.8

Rare Species

State-listed: 19

Cultural Resources

Documented: 58
National Register: 15
National Historic Landmark: 1

Miles of Roads

Paved: 14.7
Unpaved: 1.6

Miles of Trails

Official: 103.9

DCR Recreation Facilities

Ball Fields: 11
Basketball Courts: 2
Beach (Guarded): 1
Boat Launch: 1
Concessions: 2
Picnic Areas: 8
Playgrounds: 2
Ski Areas: 1
Volleyball Courts: 1

Contact Info:

(617) 698-1802 • 695 Hillside Street, Milton, MA 02186
www.mass.gov/eea/agencies/dcr/massparks/region-south/blue-hills-reservation.html



View of Great Blue Hill from across Ponkapoag Pond. (See Appendix K for photo information.)

SECTION 2. BLUE HILLS RESERVATION

2.1. INTRODUCTION

The Blue Hills Reservation (Blue Hills) is located approximately eight miles south of downtown Boston, at the intersection of Interstate 93 and Route 24. (Figure 2.1.1) It was one of the first reservations established by the Metropolitan Park Commission (MPC). Since its creation in 1893, the Blue Hills has been the largest protected open space in metropolitan Boston.

The Blue Hills is perhaps best known for its recreation facilities and activities. It has an extensive trails system that is well-used by the region's hikers and mountain bikers, and a guarded beach for public swimming. The park is also home to one of three downhill ski areas in Massachusetts' park system. There are also multiple athletic fields and ice rinks. This emphasis on recreation began in the early 1900s and continues today. Most recent capital projects have focused on creating or rehabilitating these facilities.

Less well known, but of equal significance, are the reservation's natural and cultural resources. The park is home to 19 species on the Massachusetts Endangered Species List; some of which are known from only a few populations in the state. There are

well over one-hundred archaeological and historic resources that tell the story of the Blue Hills, from its native peoples to its role in Cold War era missile defense. One resource, the Blue Hills Meteorological Observatory, is a National Historic Landmark.

The Blue Hills' physical, political, and regulatory attributes are summarized in Table 2.1.1.

Associated Properties. The Blue Hills' previous RMP (DCR 2011a) included two properties not in this section: Town Brook Flood Control Site and Ponkapoag Golf Course. Town Brook Flood Control Site was never part of the Blue Hills Reservation; but was included in the 2011 RMP due to its proximity to the reservation. Information on this property is provided in Section 1. Ponkapoag Golf Course is no longer administratively in the same Complex, District, or Region as the Blue Hills; it will be addressed in a future RMP for the Boston Complex. Because of this, resources and management practices unique to the golf course are not considered here; one shared resource, Indian Line Farm, is addressed.

Table 2.1.1. Physical, political, and regulatory settings of Blue Hills Reservation.

Setting	Name or Metric
Location:	Braintree, Canton, Milton, Quincy, Randolph
Area (acres)^a:	5,782.20
Perimeter (miles)^a:	55.16
Landscape Designation^b:	Parkland
Legislative Districts:	
House	First Norfolk Fifth Norfolk Sixth Norfolk Seventh Norfolk Twelfth Suffolk
Senate	Norfolk and Plymouth Norfolk, Bristol, and Plymouth
Regulatory Designations:	Priority Habitat Fowl Meadow and Ponkapoag Bog ACEC Outstanding Resource Waters - Farm River Great Pond - Ponkapoag and Houghton's ponds National Register District - Blue Hills Reservation Parkways National Register District - Ponkapoag Camp of Appalachian Mountain Club

a. Calculated using a Geographic Information System (GIS).

b. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

- **Indian Line Farm.** This former farm, and electronic manufacturing site, is adjacent to Route 138 and the western edge of Ponkapoag Golf Course. This area was designated as Land Stewardship Zone 3 in the previous RMP “to allow for the potential expansion of Ponkapoag Golf Course at some future date” (DCR 2011). In “the absence of administrative or recreation development” this area was to be managed as a Zone 2. The area has not been developed and is being managed as a Zone 2. Although administratively part of the Boston Region, it is included in this chapter because its management is the responsibility of the Blue Hills Complex Field Operations Team.

Blue Hills Reservation personnel also manage, as time and resources permit, Cutler Park Reservation (Section 3), Wilson Mountain Reservation (Section 4), and the Neponset River Reservation (Section 5).

Relationship to Previous RMP. This Section updates, rather than replaces, the previous Blue Hills RMP (DCR 2011a). Information is presented in the standard format and level of detail currently used for resource management planning. Extensive, detailed information on the park's history and resources was included in the previous RMP and should be considered supplemental to this chapter. Applicable recommendations contained in the previous RMP remain valid unless otherwise indicated. (See Section 2.9 for additional information.)

In order to orient readers to the section of park under consideration, the Blue Hills has been divided into geographic sub-regions. The previous RMP (DCR 2011a) included 15 sub-regions, this RMP includes 16. This change in number reflects the acquisition of the Ponkapoag Brook parcel in 2010. (Figure 2.1.2)

2.2. NATURAL RESOURCES

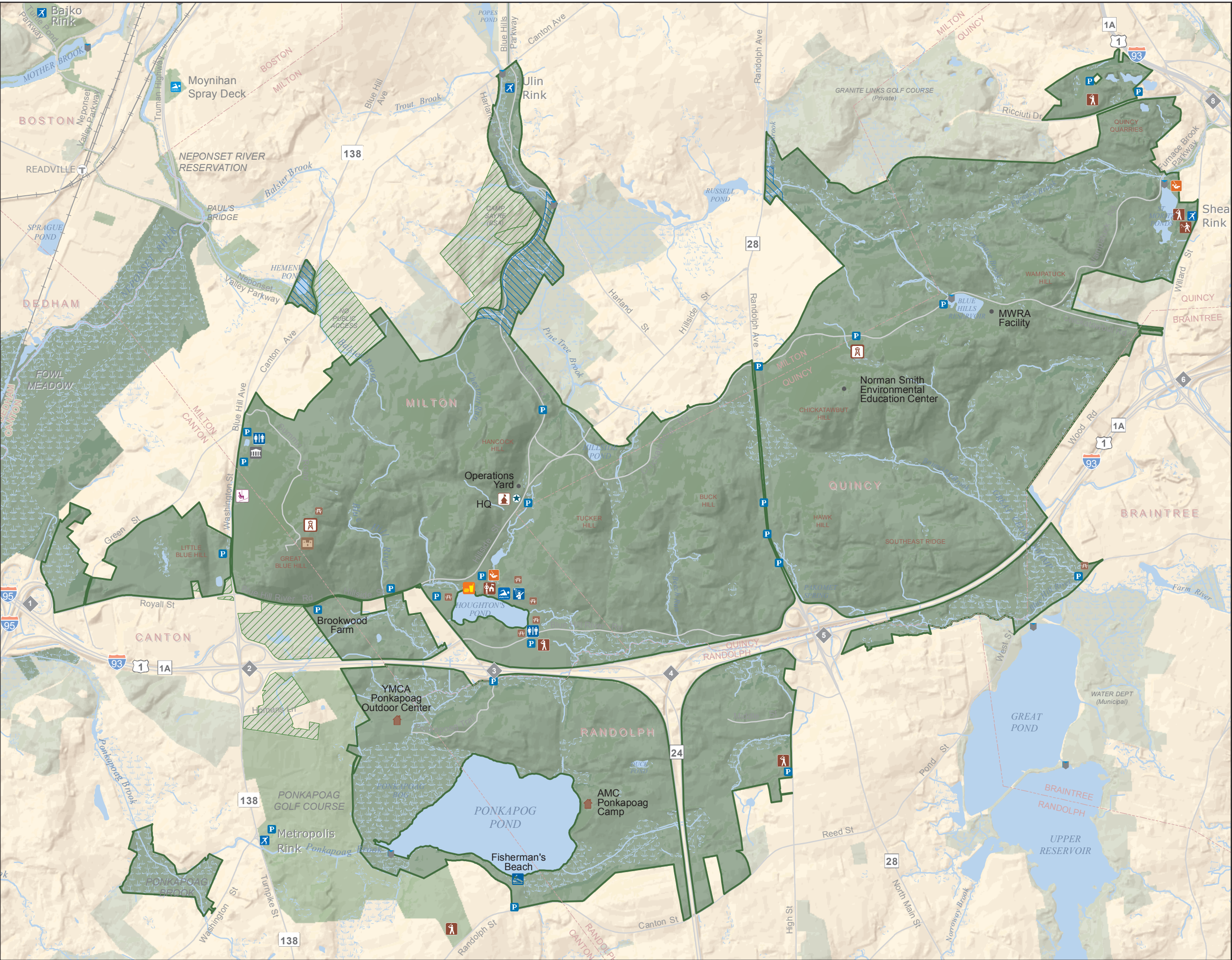
Physical Features

The reservation ranges in elevation from approximately 60 to 635 feet above sea level. It is characterized by a range of East-West oriented hills. The tallest of these, Great Blue Hill, is the highest point in metropolitan Boston. Information on the Blue Hills' geology and soils is presented in DCR (2011a).

Water Resources

The Blue Hills has modest water resources; only 994 acres (i.e., 17.2% of the reservation) are wetlands or ponds. (Table 2.2.1) However, these surface waters contribute greatly to recreation resources and opportunities, wildlife habitat, park aesthetics, and sense of place. A network of streams, seasonal streams, and the Blue Hill River further enhance these values; they also contribute to occasional flooding.

Place holder for Figure 2.1.1 (front)



Blue Hills Reservation

Figure 2.1.1

KEY

- Athletic Court
- Athletic Field
- Bath House
- Beach
- Boat Launch
- Cabins
- Dam
- Lookout Tower
- Museum
- Park Headquarters
- Picnic Area
- Playground
- Public Parking
- Restroom
- Ski Area
- Snack Bar
- State Police
- Visitor Center
- Weather Observatory
- Other Sites
- Blue Hills Reservation
- Blue Hills Complex Land
- Other DCR Land
- Other Protected Open Space
- Other Legal Interest - DCR
- Other Legal Interest - not DCR



0 1,000 2,000 3,000 Feet

Geographic information provided by MassGIS and DCR GIS. 2016



Place holder for Figure 2.1.1 (back)

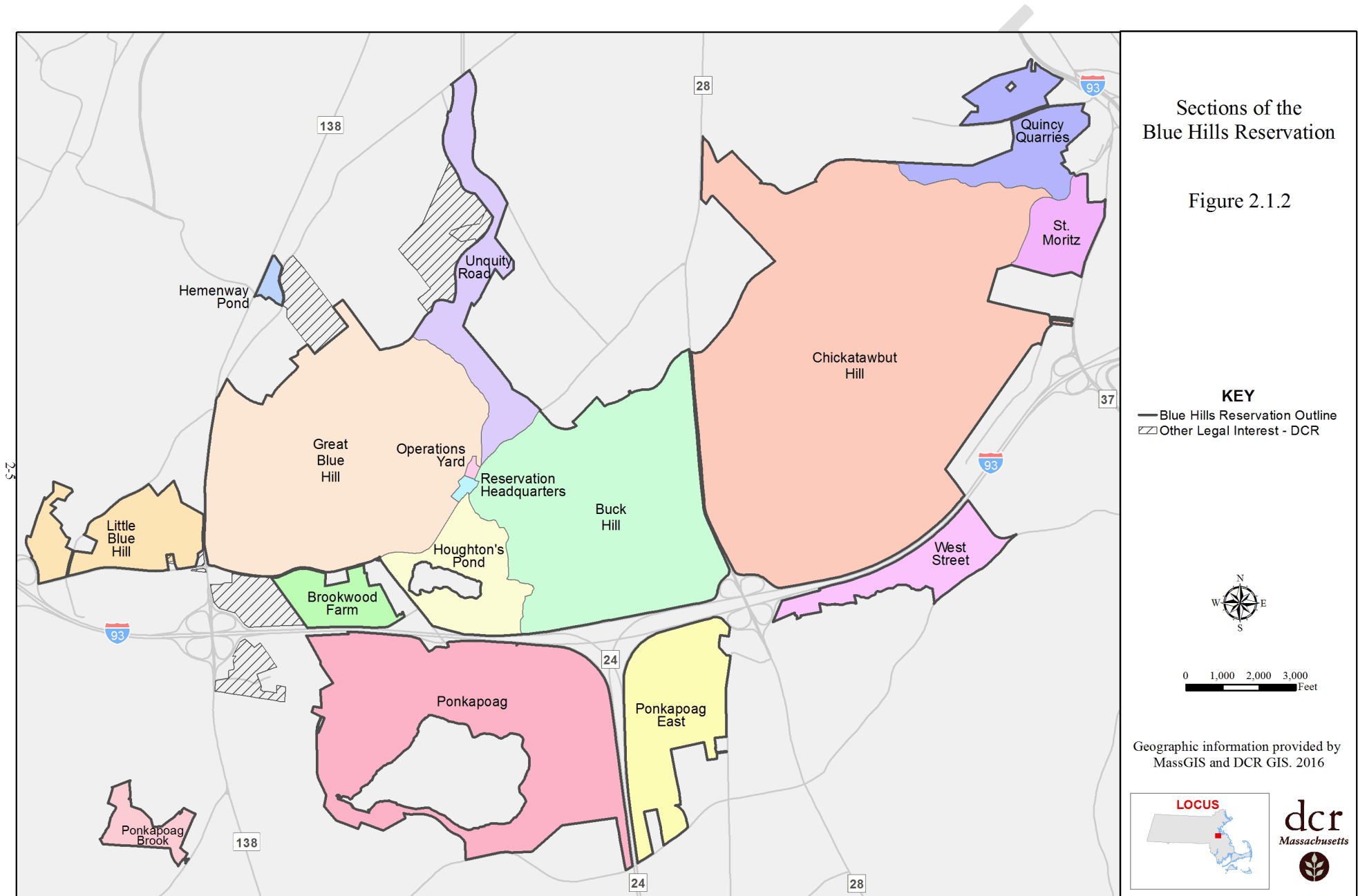


Table 2.2.1. Water resources of Blue Hills Reservation.

Water Resource	Name or Metric
Watersheds:	Neponset Weir
Aquifer:	
Medium Yield (acres)	183.61
High Yield (acres)	0.00
Rivers and Streams (miles)	7.12
Vernal Pools	
Certified (#)	63
Potential (#)	37
Wetlands (acres)	717.93
Lakes and Ponds (acres)	275.83

Ponkapoag Pond and three stream segments have impaired water quality (DEP 2013). Impairments to Ponkapoag Pond include:

- Eurasian water milfoil
- Mercury in fish tissue
- Non-native aquatic plants

The presence of mercury in fish tissue has resulted in a Public Health Fish Consumption Advisory for chain pickerel and large-mouth bass (HHS 2015). There are no signs around the pond cautioning against the consumption of these fish.

The streams with impaired water quality are Pine Tree Brook (MA 73-29), Furnace Brook (MA 74-10), and Ponkapoag Brook (MA73-27). Because affected stream segments extend well beyond the Blue Hills' boundaries, the sources and locations of impairment may be off the reservation.

Pine Tree Brook, from the outlet at Hillside Pond to its confluence with the Neponset River, has the following impairments (DEP 2013):

- Aquatic plants - macrophytes
- Dissolved oxygen
- *E. coli*
- Fecal coliform
- Physical substrate habitat alterations
- Turbidity

Furnace Brook, from its headwaters near the Blue Hills Reservoir to its confluence with Black's Creek, Quincy, has the following impairment (DEP 2013):

- Dissolved oxygen

Finally, Ponkapoag Brook, from the dam to its confluence with the Neponset River, is considered impaired (DEP 2013) due to:

- *E. coli*
- Fecal coliform

There are presently no Fish Consumption Advisories for any of these streams.

Certified vernal pools are abundant and widely distributed, occurring in all sections of the reservation except Hemenway Pond, Ponkapoag Brook, and West Street.

Floods are predicted to impact less than 10% of the Blue Hills. (Table 2.2.3) However, the full potential impacts of flooding are unknown, as flood data are unavailable for much of the park. Areas predicted to be impacted by a 100-year flood include wetlands and low elevation stretches of streams and rivers, such as Ponkapoag Pond and associated wetlands, Blue Hill River and associated wetlands, Great Cedar Swamp, Pine Tree Brook, Bouncing Brook, Furnace Brook, and Ponkapoag Brook. Areas predicted to be impacted by 500-year floods include the Blue Hill River at Brookwood Farm, Beech Run, wetlands on both sides of Route 28 south of its intersection with Chickatawbut Road, the upper reaches of Bouncing Brook, and Furnace Brook from Chickatawbut Road to Bunker Hill Lane. Within these areas are multiple trail segments. Potential flooding impacts to recreation facilities at Houghton's Pond is unknown, as this area is unmapped by the Federal Emergency Management Agency (FEMA). The road along the Massachusetts Water Resources Authority (MWRA) sewer easement in the Ponkapoag Brook section of the reservation is entirely within the 100-year flood zone. (Table 2.2.2)

Table 2.2.2. Potential impacts of flooding to Blue Hills Reservation.

Type of Impact	Acres	%
Flooding^a:		
100-year Storm	384.28	6.65
500-year Storm ^b	562.69	9.73

a. Partial information only; much of reservation is not covered by either the 1997 or 2014 FEMA flood data.

b. Cumulative value; includes 100-year storm impacts.

The reservation's steep slopes with high-gradient streams contribute to the rapid runoff of rainwater and snow melt into surface waters. Much of the Blue

Hills within the Weir River Watershed serves as a recharge area for Great Pond Reservoir in Braintree and Randolph; this area has been designated as Outstanding Resource Waters (ORWs).

Rare Species

State-listed Species

Nineteen state-listed species are known from the reservation. (Table 2.2.3) Many are associated with acidic bogs and swamps, or dry oak woodlands including those with rock outcrops. Others, such as the Blanding's turtle and state-listed salamanders may use a variety of wetland types and adjacent uplands.

Table 2.2.3. State-listed species of Blue Hills Reservation, as identified by the NHESP.

Species ^{a, b}	Type ^c	MESA ^d
Attenuated bluet	I	T
Blanding's turtle	R	T
Coastal swamp metarranthis	I	SC
Comet darter ^e	I	SC
Copperhead	R	E
Data sensitive animal	-	T
Eastern pondmussel	M	SC
Eastern red-bellied (i.e., Hentz's) tiger beetle	I	T
Eastern whip-poor-will	B	SC
Gypsywort	P	E
Hessel's hairstreak	I	SC
Lesser snakeroot	P	E
Lion's Foot	P	E
Marbled salamander	A	T
Oak hairstreak	I	SC
Pitcher plant borer	I	T
Pod-grass	P	E
Scarlet bluet	I	T
Timber rattlesnake	R	E

a. Presented alphabetically, by common name.

b. Fact sheets are available at:

<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.

c. Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; M = Mussel; P = Plant; and R = Reptile.

d. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

e. The Massachusetts Fisheries & Wildlife board has approved the removal of this species from the MESA list; this process has not yet completed.

The reservation's state-listed snakes are particularly imperiled. There are fewer than 200 rattlesnakes, distributed among five populations, in the Commonwealth. The Blue Hills' population is considered to be in "immediate jeopardy" (<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/rare-reptiles-and-amphibians/endangered-rattlesnake-conservation.html>). The reservation's copperhead population is one of only three in Massachusetts.

There are several differences between the state-listed species listed in Table 2.2.3 and those identified in the previous RMP (DCR 2011a). Two species in the 2011 RMP, Nantucket serviceberry and the New England bluet are no longer state-listed. One species documented in the previous RMP (i.e., the eastern whip-poor-will) has been added to the MESA list. Two additional species, both plants, have been recently documented in the reservation. Although lion's foot was documented in the prior RMP, information on its occurrence had not yet made it to the NHESP for confirmation. Gypsywort, a member of the mint family that is associated with wetlands, was only recently documented. Finally, there have been no observations of the waxed sallow-moth on the reservation in recent years; NHESP now considers its occurrence on the reservation historic.

Priority Habitat

Much of the Blue Hills and adjacent Ponkapoag Golf Course (77.52%) has been designated Priority Habitat under MESA. Major exceptions include:

- the western half of the Little Blue Hill section
- Hemenway Pond
- Brookwood Farm
- most (not all) of the Houghton's Pond Recreation Area
- Reservation Headquarters
- Operations Yard
- most (not all) of the Unquity Road section
- Quincy Quarries, north of Ricciuti Drive
- Ponkapoag Brook section
- Indian Line Farm
- northeast corner of the Ponkapoag section
- West Street section

Although some of the park's infrastructure and recreation facilities (e.g., Trailside Museum, skating rinks) are outside of areas designated Priority Habitat, much is not (e.g., William F. Rogers Ski Area, Curry ball field). Because of this, the most current Priority Habitat maps should be consulted for site-specific information.

Vegetation

The reservation's plants have been well documented; approximately 770 species have been recorded (Appendix H of DCR (2011a)).

In general, the park's upland vegetation is a variable mixture of oaks (white, northern red, scarlet, black, and chestnut) and white pine, with hickory, hemlock, beech, and maples locally abundant in the canopy. Highbush blueberry, viburnums, witchhazel, black cherry, black birch, and sassafras are common in the shrub layer. On ridges with rock outcrops, scrub oak with a graminoid and heath understory may be locally abundant. Both forested and unforested wetlands are present at lower elevations; the former dominated by red maple or Atlantic white cedar, and the latter dominated by shrubs or herbaceous vegetation.

The reservation's vegetation has been highly modified by deer browse. This has reduced the abundance of ground cover and shrub layer vegetation.

The reservation's vegetative history is presented in Appendix E of the previous RMP (DCR 2011a).

Invasive Species

Forty-four species characterized as Invasive or Likely Invasive (MIPAG 2005) have been reported. (Table 2.2.4) This is 10 more species than identified in the previous RMP (DCR 2011a). Eleven additional species, with invasive-like life histories but not currently listed by MIPAG (2005), have also been documented (Salicicola 2015a).

Invasive plants have been identified as a potential threat to the persistence of populations of State-listed plants (e.g., lesser snakeroot and pod-grass) in the Blue Hills (NHESP 2007). They may also pose a threat to priority natural communities at Ponkapoag Pond and Bog (NHESP 2007).

Table 2.2.4. Known invasive plants of Blue Hills Reservation.^a

Species ^a	Status ^b
Amur corktree	L
Amur peppervine	L
Ash willow	I
Asiatic tearthumb	I
Autumn olive	I
Bishop's goutweed	I
Black locust	I
Border privet	L
Brazilian waterweed	L
Carolina fanwort	I
Coltsfoot	L
Common barberry	L
Common buckthorn	I
Common reed	I
Creeping buttercup	L
Creeping Jenny	I
Curly reed	I
Cypress spurge	L
Dames rocket	I
Eurasian watermilfoil	I
Fig buttercup	I
Garlic mustard	I
Glossy buckthorn	I
Hair fescue	L
Japanese barberry	I
Japanese honeysuckle	I
Japanese knotweed	I
Japanese stiltgrass	L
Louise's swallowwort	I
Morrow's honeysuckle	I
Norway maple	I
Multiflora rose	I
Oriental bittersweet	I
Purple loosestrife	I
Reed canarygrass	I
Rusty willow	I
Spotted knapweed	L
Sycamore maple	I
Tatarian honeysuckle	L
Tree of heaven	I
Twoleaf watermilfoil	I
Wild chervil	L
Winged euonymus	I
Yellowfruit sedge	I

a. Based on DCR (2011a; Appendix H) and Salicicola (2015a).

b. Presented alphabetically, by common name.

c. Plants are classified as Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).

Natural Communities

There are 17 known natural communities. (Table 2.2.5) The rarest are associated with the park's acidic wetlands or ridgetop communities. Additional community types are likely present.

Table 2.2.5. Known natural communities of Blue Hills Reservation.^a

Community Type ^{b, c}	System ^d	State Rank ^e
Acidic Pondshore/Lakeshore	P	S4
Acidic Rock Cliff	T	S4
Acidic Rocky Summit/Rock Outcrop	T	S4
Atlantic White Cedar Bog	P	S2
Deep Emergent Marsh	P	S4
Highbush Blueberry Thicket	P	S4
Inland Atlantic White Cedar Swamp	P	S2
Level Bog	P	S3
Mixed Oak Forest	T	S4
Oak-Hemlock-White Pine Forest	T	S5
Oak-Hickory Forest	T	S5
Open Talus/Coarse Boulder Community	T	S2
Ridgetop Pitch Pine-Scrub Oak	T	S2
Red Maple Swamp	P	S5
Shrub swamp	P	S5
Successional White Pine	T	S5
White Pine-Oak Forest	T	S5

a. From DCR (2011a)

b. Classified according to Swain and Kearsley (2011).

c. Natural community fact sheets are available at <http://www.mass.gov/eca/agencies/dfg/dfw/natural-heritage/natural-communities/natural-community-fact-sheets.html>

d. E = Estuarine, NR – Not Ranked; P = Palustrine, T = Terrestrial.

e. The NHESP ranks communities from most rare (S1) to the most common (S5). Cultural Grasslands have no state rank (NR).



The reservation's only Level Bog community type (pictured) is part of Ponkapoag Bog. (See Appendix K for photo information.)

Forests

Much of the Blue Hills (4,791.31 acres, 82.86%) is forested. Non-forested areas include utility rights-of-way, roads and parking areas, open water, rock outcrops, and athletic fields. No harvests have occurred since 1987 (Moulton 1987).

Historically, CFI plots were established on DEM and not MDC properties. Because of this, there are no CFI plots in the Blue Hills. In 2015, 400 vegetation monitoring plots were established along deer survey routes in order to characterize current conditions and monitor for changes in tree regeneration (DCR 2016). The following vegetation types were identified from these plots:

- White pine - Oak
- Oak - Hardwoods
- White pine - Hardwoods
- Mixed oak
- White pine
- Hemlock - Hardwoods
- Chestnut oak
- Beech - Maple - Birch
- Other; includes northern red oak, Norway maple, red maple, American beech, white pine - hemlock, meadow, and abandoned orchard.

Trees less than one inch diameter at breast height (DBH) were primarily white pine (46.7% to 78.8% of stems per acre, depending on size class). White pine stems were less common (22.7%) for trees with DBHs of one to five inches (DCR 2016). This indicates that oak regeneration was more common in the recent past. Despite 72% of the overstory having an oak component, oak regeneration is lacking in the Blue Hills. Continued browsing of regeneration could stop development patterns that promote diversity of species and forest structure.

Wildlife

Recent wildlife surveys have largely been limited to the certification and monitoring of vernal pools, or quantifying the density of white-tailed deer. In 2013, personnel from the DCR and Massachusetts Division of Fisheries and Wildlife (MassWildlife) conducted surveys to estimate the density of deer in the reservation; the resulting estimate of 85 deer/mi² of deer habitat was above DFW's deer density goal of 6–18 deer/mi² of forest. The reservation is a birding hotspot, and as of December, 2016, birders had reported 192 total species at four locations (i.e., Blue Hills Reservation, Buck Hill, Trailside

Museum, and Ponkapoag Pond; eBird 2012). Information on the reservation's mammals, reptiles, amphibians, fish, butterflies, and dragonflies was presented in Appendices L–Q of DCR (2011a).

2.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of the Blue Hills Reservation is presented in Table 2.3.1. Cultural Resources are identified in Table 2.3.2.

Eighty-six archaeological resources are listed by the MHC; two are also listed in the National Register. Because the MHC does not make information on archaeological resources available to the general public, most resources are not included in Table 2.3.2. Only those resources listed in the National Register are identified.

Table 2.3.1. Significant events in the history of Blue Hills Reservation.

Year(s)	Events
1893	The Metropolitan Park Commission (MPC) is established to “acquire, maintain, and make available to inhabitants of said district open spaces for exercise and recreation.”
1893–1894	Blue Hills Reservation is established with a 933 acre acquisition. Additional acquisitions bring the reservation’s size to 3,953 acres.
1895	Development of park infrastructure begins at Houghton’s Pond with the construction of two bath houses; picnic tables are soon added. Over time, additional recreation infrastructure is added at this site, including a small building and bicycle stand (1889), a sanitary (1910), ball field (1911), concession (1930), bath house and beach (1935), and baseball diamonds and tennis courts (1937).
1897–1907	Initial development of Great Blue Hill for park purposes begins with the construction of a superintendent’s house at the western base of the hill. This is soon followed by a street car waiting room and platform, sanitary, refectory, Eliot Memorial Bridge, and a bandstand.
1898	Reservation expands south of the Blue Hill River, with the donation of the 697 acre Henry L. Pierce estate located to the east, north, and west of Ponkapoag Pond.
1899	A strip of land along Randolph Avenue, Milton is granted to the Norfolk County Commissioners for streetcar tracks. Additional land transfers for public projects continue throughout the reservation’s history.
1899–1905	Development of administrative facilities at Hillside Street, including a stable (1899), superintendent’s house (1900), and a combined police station and superintendent’s office (1904). An existing farm house is renovated for use as a police and employee dormitory (1905).
1911–1923	Permission is granted for the Newsboy’s Association, Boy Scouts of America, Appalachian Mountain Club, and the Young Men’s Christian Association to establish camps. The AMC and YMCA camps continue today.
1919	The Metropolitan District Commission (MDC) is created by the combining of the MPC with the Metropolitan Water and Sewer Commission.
1933–1937	Civilian Conservation Corps is active on the reservation, constructing recreational facilities, improving infrastructure, and conducting forestry activities.
1937	Acquisition of the Little Blue Hill area expands the reservation westward, toward the Neponset River Reservation. (See Section 5 for additional information.)
1949	Blue Hills Reservoir is constructed from an existing wetland and surrounding uplands, requiring re-alignment of a portion of Chickatawbut Road. The reservoir is again reconstructed in 2008–2009.
1954–1958	Portions of reservation taken by the state for the construction of Routes 128 and 24.
1954–1966	U.S. Army uses portions of the reservation for the Nike Battery BO-55 Launcher Area (Ponkapoag East) and the Nike Battery BO-55 Integrated Fire Control Area (Chickatawbut Hill).
1959	Trailside Museum opens to educate the public about the nature of the Blue Hills.
1959	Blue Hills Ski Area opens; it is soon renamed the William F. Rogers Ski Area. A major expansion takes place in 1962–1964.
1964	A small piece of the Quincy Quarries (i.e., the northern rail terminus) is protected by the MDC; this land is transferred to the City of Quincy in 1968. Additional land protection efforts at the quarries follow.
1976	Brookwood Farm (70 acres), the former estate of Henry Saltonstall Howe, is donated to the MDC.
1980s	Renewed emphasis on land protection through acquisition of land and conservation restrictions.
1984	Indian Line Farm is acquired by eminent domain; investigation and remediation of contaminants occur for more than a decade.
1994	Approximately 68 acres are added to the reservation with the acquisition of the Carberry and Bartol parcels along the northwest side of Hemenway Hill.
1997	Water is pumped from former quarries north of Ricciuti Drive in Quincy. These quarries are subsequently filled, and multi-purpose recreation fields are established.
2010	Fifty-six acre Ponkapoag Brook parcel acquired.

Table 2.3.2. Cultural resources of Blue Hills Reservation.

Location and Resource ^a	Type ^b	Date ^c	Condition ^d	Integrity ^e	In Use ^f	Utilities ^g	MHC # ^h	Guidance ⁱ
RESERVATION-WIDE								
Interior Parkways	LA	1897–1939	-	M	-	-	CAN.AG MLT.AL MLT.AM MLT.V QUI.AR	1
Green Street	ST	1930s	3	M	-	-	CAN.925 MLT.967	1
Blue Hill River Road - segment one	ST	ca. 1900	3	M	-	-	CAN.924	1
Blue Hill River Road - segment two	ST	ca. 1900	3	M	-	-	MLT.966	1
Hillside Street	ST	1897	4	M	-	-	MLT.964	1
Unquity Road	ST	1897	3	M	-	-	MLT.963	1
Pine Tree Brook culvert ^j	ST	1902	2	M	-	-	MLT.968	1
Chickatawbut Road	ST	1897	3	M	-	-	BRA.927 MLT.965 QUI.9077	1
Chickatawbut Overlook	ST	1935	3	H	-	-	-	1
Chickatawbut Road entrance gates	ST	ca. 1939	4	H	-	-	BRA.929	1
Wompatuck Road	ST	1905	3	M	-	-	QUI.9078	1
Blue Hills Reservation culvert system	ST	1920	3	M	-	-	BRA.928 CAN.926 MLT.969 QUI.9079	1,2
Blue Hills Reservation stone wall system	ST	-	3	M	-	-	-	2
LITTLE BLUE HILL								
Stone Paddock	ST	-	5	M	-	-	-	2
Hemenway Bench and Vista	OB	ca. 1931	-	H	-	-	-	3
Royall Street House	BU	-	4	H	Y	E, S, W	-	4
Green Hill Site (National Register)	AR	-	-	H	-	-	19.NF.43	6
HEMENWAY POND								
Retaining wall	ST	-	4	M	-	-	-	2
Entrance pillars	ST	-	4	M	-	-	-	2
GREAT BLUE HILL								
Trailside Museum	LA	1898–1959	-	M	-	-	-	2,3
Museum and two additions	BU	1898, 1956, 1975	3	M	Y	E, H, I, P, W	-	4
Turtle enclosure	ST	1959	4	H	-	W	-	2
River otter enclosure	ST	1959	4	H	-	W	-	2
Blue Hills Reservation Comfort Station (National Register)	BU	1904	2	H	Y	E, H, W	MLT.399	4
William F. Rogers Ski Area Landscape	LA	1935–1963	-	M	-	-	-	2,3
Compressor Building (mid-slope)	BU	ca. 1962	4	H	S	E, W	-	4
First Aid Building foundation	ST	ca. 1963	3	M	-	-	-	2
Ski school	BU	ca. 1963	3	M	S	E, H	-	4
Lodge	BU	ca. 1963	3	M	S	E, H, I, P, S, W	-	4
Maintenance Garage	BU	ca. 1963	4	M	S	E, H	-	4

Location and Resource ^a	Type ^b	Date ^c	Condition ^d	Integrity ^e	In Use ^f	Utilities ^g	MHC # ^h	Guidance ⁱ
Canton/Milton Town Boundary Marker	OB	-	-	H	-	-	-	2
Blue Hill Meteorological Observatory Landscape	LA	1885–1960	-	M	-	-	-	2,3
Blue Hill Meteorological Observatory (<i>National Register and National Historic Landmark</i>)	BU	1885	4	H	Y	E, H, I, P, S, W	MLT.931	4
Rotch Memorial	ST	1914	3	M	-	-	-	2
Blue Hill Meteorological Observatory wall	BU	1905	3	H	-	-	-	2
Blue Hill Meteorological Observatory shed	BU	-	4	M	Y	-	-	4
WGBH Building ^j	BU	1953	2	H	Y	E, I, P	-	-
Summit Road	ST	-	3	H	-	-	-	2
Great Blue Hill pump house	BU	1913	5	M	N	-	-	4, 5
Eliot Memorial Landscape	LA	1904–1939	-	M	-	-	-	2,3
Eliot Pavilion (<i>National Register</i>)	ST	1937–1939	4	M	-	-	MLT.929	3, 4
Eliot Memorial Bridge (<i>National Register</i>)	ST	1906	2	M	-	-	MLT.930	3, 4
Charles Eliot Memorial Path	ST	1904	3	M	-	-	-	3
House site (Hillside Street and Blue Hill River Road)	AR	pre-1895	-	M	-	-	-	6
Stone Well – Base Path	ST	ca. 1935	3	H	-	-	-	2
BROOKWOOD FARM								
Brookwood Farm Landscape (<i>National Register</i>)	LA	1710–1960	-	H	-	-	-	2,3
Stone walls	ST	-	3	H	-	-	-	2
Gate Keeper's Cottage (Caretaker's Cottage)	BU	ca. 1790	4	H	N	E, W	CAN.61	4
Gardener's Cottage foundation	ST	ca. 1800	3	M	-	-	-	2
Garage (tractor shed)	BU	1997	3	N/A	Y	E	-	4
Old barn (i.e., First Period barn) (<i>National Register</i>)	BU	ca. 1710–1750	2	M	-	E	CAN.62	4
Barn	BU	early 20 th century mid-20 th century 2011	3	M	N	-	-	4
Culvert	ST	1840–ca. 1950	3	H	-	-	-	2
Entrance pillars	ST	-	2	H	-	-	-	2
Fields	LA	1710–1960	-	H	-	-	-	3
Henry Saltonstall Howe House landscape	LA	1957	-	H	-	-	-	2, 3
Henry Saltonstall Howe House	BU	1957	3	H	Y	E, H, P, S, W	CAN.58	4
Specimen trees	LA	-	-	H	-	-	-	3
Allée - maple trees along drive	LA	-	-	H	-	-	-	3
HOUGHTON'S POND								
Houghton's Pond Landscape	LA	1910–1930	-	H	-	-	-	2, 3
Visitor Center (Sanitary)	BU	1910	3	H	S	E, W	-	4
Concession (Refreshment pavilion) (<i>National Register</i>)	BU	1930	3	H	S	E, W	MLT.398	4
Granite stairs	ST	-	4	M	-	-	-	2
Stone retaining wall	ST	1929	3	H	-	-	-	2
Lawn	LA	-	-	H	-	-	-	3
Beach	LA	-	-	M	-	-	-	2
Water fountain – Bugbee Path	OB	-	-	M	-	-	-	2

Location and Resource ^a	Type ^b	Date ^c	Condition ^d	Integrity ^e	In Use ^f	Utilities ^g	MHC # ^h	Guidance ⁱ
HEADQUARTERS AREA								
Blue Hills Headquarters Landscape (National Register)	LA	1899+	-	H	-	-	-	2, 3
Blue Hills District Office	BU	pre-1895	3	H	Y	E, H, I, P, W	-	4
Brian T. Broderick (MDC) Stables (National Register)	BU	1899	5	H	N	E, W	MLT.397	4
Police Headquarters - original building, addition, and garage	BU	1904, 1916, 1939	3	H	Y	E, H, I, P, W	MLT.396	4
Captain's House - former Regional Office	BU	1900	3	H	Y	E, H, I, P, W	-	4
Water Fountain	OB	-	-	H	-	W	-	2
Drive	LA	-	-	H	-	-	-	2
Lawn	LA	-	-	H	-	-	-	3
Mature trees	LA	-	-	H	-	-	-	3
Hydrant	OB	-	-	M	-	-	-	2
Quincy/Milton town boundary marker	OB	-	-	H	-	-	-	2
OPERATIONS YARD								
Operations Yard Landscape	LA	1932+	-	M	-	-	-	2
Blue Hills Maintenance Garage	BU	1932	4	H	Y	E, H	-	4
Carpenter Shop	BU	1941	3	H	Y	E, H, W	-	4
Office - Operation Supervisor	BU	1960+	3	H	Y	E, H, I, P, W	-	4
Repair Shop/Lawn Mower #1	BU	1937	3	H	Y	E	-	4
Repair Shop/Lawn Mower #2	BU	1937	3	H	Y	E	-	4
UNQUITY ROAD								
Max Ulin Memorial Skating Rink	BU	1962	3	H	Y	E, P, S, W	-	4
Pine Tree Brook								
Pine Tree Brook Reservoir Dam (MA00824), with spillway	ST	1905	4	M	-	-	-	2
Harling Mill site	AR	ca. 1795	-	M	-	-	-	6
Pine Tree Brook culvert ^j	ST	1902	3	H	-	-	MLT.968	1
BUCK HILL								
Cellar hole – Bugbee path	AR	Pre-1895	-	H	-	-	-	6
Stable – Randolph Avenue Stable	BU	1908	4	H	N	E	-	4
CHICKATAWBUT HILL								
CCC Camp SP-1	LA	1933–1937	-	L	-	-	-	-
Finished walls	ST	1933–1937	3	M	-	-	-	2
Raised foundation	ST	1933–1937	3	M	-	-	-	2
Mess Hall foundation	ST	1933–1937	4	M	-	-	-	2
Concrete bunker	ST	1933–1937	3	M	-	-	-	2
Pakomet Spring	LA	1936–1937	-	L	-	-	-	2
Glover site	AR	Pre-1895	-	L	-	-	-	5
Norman Smith Environmental Education Center at Chickatawbut Hill; former Nike Battery BO-55 Integrated Fire Control Area.	LA	1953–1954	-	M	-	-	-	-
Dining Hall	BU	1953–1954	3	H	Y	E, H, P, S, W	-	4
Office	BU	1953–1954	3	H	Y	E, H, P, S, W	-	4
Dormitory	BU	1953–1954	3	H	Y	E, H, P, S, W	-	4
Tank House	BU	1953–1954	3	H	Y	E, W	-	4
Radar Pad	ST	1953–1954	4	L	-	-	-	2

Location and Resource ^a	Type ^b	Date ^c	Condition ^d	Integrity ^e	In Use ^f	Utilities ^g	MHC # ^h	Guidance ⁱ
Chickatawbut Overlook	LA	1935–1937	-	M	-	-	-	2, 3
Chickatawbut Overlook ^j	ST	1935	3	M	-	-	-	1, 3
Stairs	ST	ca. 1935	3	H	-	-	-	2
Grills (2)	OB	ca. 1935	-	M	-	-	-	2
Pavilion	ST	1934	3	H	-	-	-	4
Observation Tower (<i>National Register</i>)	ST	1935	4	H	-	-	QUI.918	4
Mass Hornfels – Braintree Slate Quarry (<i>National Register</i>)	LA	1936–1937	-	L	-	-	19.NF.106	2
QUINCY QUARRIES								
Quincy Quarries Landscape	LA		-	M	-	-	-	2
Granite Rail Company Compressor House	BU	ca. 1900	5	M	N	-	QUI.311	4, 5
Granite Rail Quarry 1a	ST	-	3	M	-	-	-	2
Granite Rail Quarry 1b	ST	-	3	M	-	-	-	2
Granite Rail Quarry 1c	ST	-	3	M	-	-	-	2
Swingle's Quarry	ST	-	3	M	-	-	-	2
Berry's Quarry	ST	-	3	M	-	-	-	2
Grotto Ruin	ST	-	6	L	-	-	-	2
Bunker Hill Quarry	ST	-	3	M	-	-	-	2
Granite Railway terminus (<i>National Register – part of Quincy Granite Railway listing</i>)	ST	ca. 1826	3	M	-	-	QUI.932	2
Elevated railway fill (<i>National Register – part of Quincy Granite Railway listing</i>)	ST	ca. 1826	3	M	-	-	-	2
SAINT MORITZ								
Saint Moritz ski jump	ST	ca. 1935	5	L	-	-	-	2
Mayor William T. Shea Memorial Rink	BU	ca. 1952	3	H	Y	E, H, P, W	-	4
St. Moritz Pond Dam (MA03373)	ST	pre-1935	3	M	-	-	-	2
PONKAPOAG								
Indian Line Farm stone walls	ST	-	3	M	-	-	-	2
Randolph Street cellar hole	AR	-	-	L	-	-	-	6
Fisherman's Beach foundation pad	AR	1900+	-	M	-	-	-	6
AMC Ponkapoag Camp (<i>National Register</i>)	LA	1921–1960	-	H	-	-	RAN.C	2, 3
Cottage #1 - cabin 1 - Spang ^{k,1}	BU	1922	-	-	S	-	RAN.20	-
Cottage #2 - cabin 2 - Hickey ^{k,1}	BU	1926	-	-	S	-	RAN.21	-
Cottage #3 - cabin 3 - Bourbeau ^{k,1}	BU	1929	-	-	S	-	RAN.22	-
Cottage #4 - cabin 4 - Stose ^{k,1}	BU	1930	-	-	S	-	RAN.23	-
Cabin 5 - Wilkie ^k	BU	-	-	-	S	-	-	-
Cabin 6 - Gorlin ^k	BU	-	-	-	S	-	-	-
Cabin 7 - Folsom ^k	BU	-	-	-	S	-	-	-
Cabin 8 - Godfrey ^k	BU	-	-	-	S	-	-	-
Cabin 9 - Dienes ^k	BU	-	-	-	S	-	-	-
Cabin 10 - Duncan ^k	BU	-	-	-	S	-	-	-
Cabin 11 - Sheldon ^k	BU	-	-	-	Y	-	-	-
Cabin 12 - Hamfmann ^k	BU	1929	-	-	S	-	-	-
Cabin 13 - Lakeview ^k	BU	-	-	-	S	-	-	-
Cabin 14 - Turner ^k	BU	-	-	-	S	-	-	-
Cabin 15 - Marian ^k	BU	-	-	-	S	-	-	-
Cabin 16 - Jones ^k	BU	-	-	-	S	-	-	-
Cabin 17 - Rogers ^k	BU	-	-	-	S	-	-	-
Cabin 19 - Nunn ^k	BU	-	-	-	S	-	-	-

Location and Resource ^a	Type ^b	Date ^c	Condition ^d	Integrity ^e	In Use ^f	Utilities ^g	MHC # ^h	Guidance ⁱ
Cabin 20 - Smith ^k	BU	-	-	-	S	-	-	-
Cabin 21 - Pine ^k	BU	-	-	-	S	-	-	-
Cabin 22 - North ^k	BU	1926	-	-	S	-	-	-
Cabin 23 - Main lodge ^k	BU	-	-	-	S	-	-	-
Spring house ^k	BU	Pre-1949	-	-	-	-	-	-
Former ice house - tool shed ^k	BU	Pre-1949	-	-	-	-	-	-
Boy Scout Camp	AR	ca. 1953	-	L	-	-	-	6
Ponkapoag Cabin Site A	AR	-	-	L	-	-	-	6
Ponkapoag Cabin Site B	AR	-	-	L	-	-	-	6
YMCA Ponkapoag Outdoor Center (former Camp Dorchester)	LA	1923+	-	M	-	-	-	2
PONKAPOAG EAST								
Nike Battery BO-55 Launcher Area	LA	1953–1954	-	L	-	-	-	2
Silos (3)	ST	1953–1954	5	M	-	-	-	4

- a. Geographic sub-regions of the park are identified in DCR (2011a). Listing on the National Register of Historic Places (i.e., National Register) or designation as a National Historic Landmark are identified after the resource name, if applicable.
- b. Resource types include the following: AR = Archaeological; BU = Building; BG = Burial Ground; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; RD = Residential District; and ST = Structure.
- c. Date of construction provided, when known.
- d. Preliminary condition assessment of buildings and structures using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- e. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- f. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- g. The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- h. Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.
- i. The following guidance is offered for the ongoing maintenance of these cultural resources:
1. Refer to *Historic Parkway Preservation Guidelines* (DCR 2007a)
 2. Refer to *Historic Landscapes - Built Features BMP* (DCR n.d.d).
 3. Refer to *Vegetation in Historic Landscapes BMP* (DCR n.d.e).
 4. Refer to *Historic Building Maintenance BMP* (DCR n.d.f).
 5. Refer to *Archaeological Features BMP* (DCR n.d.g).
 6. Refer to *Mothballing Historic Buildings BMP* (DCR n.d.h).
 7. Refer to *Quarries BMP* (DCR n.d.i).
- j. Resource is also listed under Reservation-wide, Interior Parkways.
- k. Infrastructure located on DCR property, but not owned or controlled by the DCR. Its condition is not assessed.
- l. Only these Appalachian Mountain Club cottages are included in the "Ponkapoag Camp of the Appalachian Mountain Club" listing.

ARCHAEOLOGICAL RESOURCES

Pre-Contact Archaeological Resources

Numerous pre-Contact sites are documented in the reservation, clearly demonstrating the importance of the Blue Hills Range. Native American use of the entire Neponset River (from its headwaters in Foxborough to its estuary at Dorchester Bay) is well recorded at the MHC. Within this river basin, are marine and estuarine resources, large and small rivers, tributary streams, brooks, wetlands, ponds, and lakes. Ponkapoag Brook, which drains Ponkapoag Pond and flows west to the Neponset, was probably an important anadromous fish run during prehistoric times. Besides an abundant and diversified food supply, the Blue Hills served as a source of stone. Blue Hills felsites can be found in outcrops or as cobbles in glacial deposits. Braintree Slate from a known Native American quarry (19-NF-42) was used since the Middle Archaic times, and easily weathered Braintree Hornfels was popular during the Middle Woodland period. Artifacts made from materials quarried in the Blue Hills have been recovered at sites throughout Massachusetts and attest to the area's importance in prehistoric times.

Many systematic archaeological surveys have been conducted within the Blue Hills, and it is highly sensitive for pre-Contact sites. Such sites can range from a "find-spot" of a singular artifact, to a Contact Period or Praying Indian Village. MHC files record at least one site near the intersection of Unquity Road and Harland Street (19-NF-282); there appears to be no information on this site. Directly east of this site, on the small knolls at the north margins of a swamp, amateur collectors have excavated several large areas; leaving them open to this day. Records for these sites are with the Fred Carty Collection at the R. S. Peabody Museum, Andover. Two other sites (19-NF-207 and 19-NF-208) are located next to Hillside Pond on Hillside Street. Middle and Late Archaic components have been collected from these sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Archaeological Resources

Initially, development of the Neponset River core area was largely based on agriculture. An industrial base in shipbuilding and milling soon led to expansion of settlement inland and up-river. The development of transportation routes and links, and

the intensification of commercial and industrial growth, made the Blue Hills area important regionally.

Historic archaeological resources in this area are associated with a wide variety of eras of development. Archaeological remains include domestic, agricultural, industrial, institutional, commercial, military, ecclesiastical, social, transportation and recreational sites/complexes, landscape features, and structures. Landscape features include such resources as roads and boundary markers, quarries, farmsteads, fields, historic treelines, and recreation sites. Structures may include farms or homesteads (and associated outbuildings), civic or commercial buildings, industrial structures (e.g., kilns, holding tanks), transportation complexes, institutional (e.g., hospital) facilities, military facilities, and recreational structures.

Most of the Blue Hills' historic archaeological resources are associated with either farms or homesteads that pre-date the reservation, or with early recreation development. Among the former are house sites and cellar holes (e.g., Glover site, Bugbee Path cellar hole) located along historic roads and current trails. Often, only stone walls and foundations remain. Among the latter are the remnants of cabins associated with youth groups (e.g., Boy Scouts). (See DCR 2011a for additional information on these historic archaeological resources.)

Due to the abundance and significance of archaeological resources at the Blue hills, any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Historic Resources

The Blue Hills' historic resources are associated with the following three eras of development:

- **Pre-Reservation; Contact-1892.** Resources from this period are associated with the farms and estates developed before the creation of the reservation.
- **Metropolitan Park Commission (MPC); 1893-1919.** Resources from this period are associated with the initial development of the reservation by the MPC.

- **Metropolitan District Commission (MDC): 1920–1960.** Resources from this period are largely associated with the development of recreation infrastructure by the MDC and Civilian Conservation Corps (CCC). It also includes resources related to Cold War era missile defense.

The Blue Hills contains an eclectic variety of historic resources. (Table 2.3.2) Most are part of broader, thematically-related landscapes. The following information briefly describes these landscapes and their contributing elements. Detailed descriptions may be found in DCR (2011a). Non-historic buildings and structures associated with these resources are identified in Table 2.5.1

Historic Landscapes

Internal Parkway. The reservation's internal parkways include the following roads:

- Green Street
- Blue Hill River Road
- Hillside Street
- Unquity Road
- Chickatawbut Road
- Wampatuck Road



Evening commuter traffic on Hillside Street, a historic parkway. These cars are backed up from a stop sign over 3,400 feet down the road. (See Appendix K for photo information.)

These reservation-wide resources and their associated contributing elements (e.g., overlooks, vegetative elements, and other objects) are listed in the National Register. They provide transportation links and recreational experience within the park's historic and natural landscapes. This parkway

system is significant for having first been developed by Eliot, Olmsted and Olmsted in 1893, and later enhanced by the CCC in 1933.

Culverts. Associated with the parkways are culverts, which channel and direct run-off at strategic points in system. They are called out in the National Register Nomination as a contributing element to the reservation's parkways.

Stone Walls. Common throughout the park, stone walls were almost entirely built in the Pre-Reservation era. These walls are a direct link to the area's agricultural past. Their purpose was to help identify property lines, separate fields and pastures, and contain livestock.

Hemenway Pond. A dry laid 370-foot-long stone retaining wall, a pair of granite entrance pillars, and a carriage road are the only known resources in this landscape. Their construction dates are unknown.

Trailside Museum. Located at the base of Great Blue Hill, this landscape includes a building constructed by the MPC as the residence of the park superintendent, as well as a Comfort Station designed by the Boston based architectural firm of Stickney and Austin. The Trailside Museum, which has been expanded and repurposed over the years, contains displays, meeting rooms, and private office and work areas. This landscape includes two historic concrete pens that date to the late 1950s (i.e., MDC era). The otter pen no longer meets animal husbandry standards; a new pen and exhibit is currently planned. A variety of non-historic animal pens and buildings are also present. (See Table 2.5.1 for information on non-historic buildings.)

William F. Rogers Ski Area. This small ski area is located on the western slope of Great Blue Hill. Its use dates to the mid-1930s; but the majority of its historic buildings date from the early 1960s. This area is most significant for being initially developed by the CCC, and also as a location where artificial snowmaking technology is believed to have been pioneered. The buildings retain much of their historic integrity. The ski trails have been modified and expanded over time, most recently in 2015. A variety of non-historic elements, such as sheds and structures associated with various lifts are present throughout the landscape.

Blue Hill Meteorological Observatory. The observatory landscape is located at the summit of Great Blue Hill. It consists of a variety of features associated with conducting meteorological observations and research on Great Blue Hill. The heart of the landscape is the Blue Hill Meteorological Observatory, the reservation's only National Historic Landmark. Other landscape components include the landscape's wall and grounds, adjacent outbuildings, the Rotch Memorial, Summit Road, and Great Blue Hill Pumphouse. This last resource, which once pumped water to the observatory, is located on Hillside Street opposite Brookwood Farm.

The observatory consists of a concrete tower connected to a granite building. A recent structural assessment identified large cracks in both the interior and exterior surfaces of the tower, resulting in portions of the tower falling away (DCR and Turowski2 Architecture, Inc. 2015a). The assessment included eight "Life Safety" and nine "Asset Protection" recommendations to be implemented immediately or in the very near term (i.e., three to five years). An additional 23 recommendations were for actions to be taken in the next five to ten years, and 12 recommendations for actions to be taken in the next 10 to 20 years. Despite its condition, the meteorological observatory building retains a high level of integrity; its associated landscape less so.

Eliot Memorial Landscape. A memorial path, stone bridge, and stone pavilion on the summit of Great Blue Hill were developed between 1904 and 1939 in honor of Charles Eliot, landscape architect to the MPC. A seat on the bridge historically afforded views eastward along the Blue Hills, while the pavilion's observation tower offered a 360-degree view. A recent conditions assessment of the bridge and pavilion included 19 recommendations, eight of which "should be scheduled for replacement immediately" (DCR and Turowski2 Architecture, Inc. 2015b). An additional four recommendations were for actions to be taken in the next five to ten years, and seven recommendations for actions to be taken in the next 10 to 20 years. One recommendation, to repoint the entire Eliot Bridge with water repellant mortar, was implemented in June 2016. Despite the remaining structural needs and long-term changes to the viewshed, the landscape retains much of its integrity.



View of Eliot Bridge in 1907; note the height of the vegetation on the summit of Great Blue Hill. (See Appendix K for photo information.)

Brookwood Farm. This extensive historic agricultural landscape, which predates the reservation, includes residential buildings, various barns, and other agricultural features. The most historically significant resources are the Gatekeeper's Cottage and associated old barn. Both are listed on the National Register. Since the previous RMP (DCR 2011a), both buildings have undergone extensive renovation performed by the North Bennet Street School. Repairs to the Gate Keeper's Cottage include: demolition of the rear ell; construction of a new rear ell and foundation; and repairs to the main cottage's sheathing. The cottage still needs siding, a roof, and repairs to the chimney to prevent water penetration; it is presently covered by tarps. The "old barn" listed in the 2011 RMP (DCR 2011a) consisted of a two-bay barn constructed ca. 1710–1750, with alterations and additions. The barn was moved to the Brookwood Farm location in 1840 and a third bay added at that time. Additions were constructed in the early and mid-1900s. In 2009, the original barn was deconstructed; in 2011 it was re-assembled approximately 60 feet southwest of its previous location. A new addition, in the same style as the 1900s additions, was constructed in its place. This addition was constructed atop a concrete slab, and incorporates some framing members from the 1840 expansion. A variety of historic (e.g., entrance pillars) and non-historic (e.g., sugar shack) resources are also present in this landscape.



This ca. 1710–1750 English style barn was reconstructed at Brookwood Farm in 2011. It may be the sole remaining example of this barn type in New England. (See Appendix K for photo information.)

In 2006, Brookwood Farm was returned to active agricultural use by the non-profit organization Brookwood Community Farm. This organization occupies one of the landscape's non-historic buildings and farms approximately three acres of fields.

Within the Brookwood Farm landscape is another, smaller historic landscape associated with the Henry Howe House. It includes the house, its specimen trees, and other ornamental vegetation. The house is used as the reservation's conference center. It is also currently used to store power equipment (e.g., mowers, trimmers) and associated oil, fuels, and supplies.

Houghton's Pond. This landscape contains buildings, structures, and landscape elements associated with recreational use of the pond. These resources were developed in the early 1900s by the MPC and MDC. The visitor center (originally a "sanitary;" i.e., a comfort station) was designed by Stickney and Austin in 1910. This building is a one story side-gabled building with projecting bays and a distinctive cedar shingled roof designed to look like thatch. The basement of the visitor center, which is used to store equipment and supplies, is periodically flooded by the waters of Marigold Marsh. The concession stand is a stone, side gabled, open air pavilion with an enclosed area for food service. It was designed in 1930 by the architectural firm of Putnam and Cox, and is listed on the National Register. Other buildings and features have been added over time to provide amenities to the reservation's beach goers. The landscape retains a

high level of integrity as an example of a late MPC-early MDC park recreation area.

Blue Hills Headquarters. The headquarters landscape includes the District Office, Brian T. Broderick Stables, Captain's House, and State Police barracks; it was developed by the MPC between 1899 and 1904. The District Office, an early 19th century Cape Cod style building, predates creation of the reservation. The other three buildings were designed by Stickney and Austin for the purpose of creating an administrative center. They were laid out in a deliberate hierarchical system with the Captain's House being the most elevated center piece. A 2007 study of the stable identified significant structural problems with the integrity of the west wall and recommended that the building not be used until after repairs are performed (Structures North 2007). Approximately \$598,000 in structural repairs took place in 2014 and 2015. An estimated \$120,000 in repairs are still needed to address structural problems with the north and west walls. Additional repairs and upgrades are needed for the building to be used as originally intended; a functioning horse stable. The building is currently used for storage of lawn mowers, associated oil and fuel, a rescue OHV, and bathroom supplies. This landscape retains its integrity as an example of an MPC park headquarters.



Repair to the courtyard area of the Broderick Stable in 2014. Significant structural repairs are still needed to stabilize the building. (See Appendix K for photo information.)

Operations Yard. This area includes a cluster of utilitarian structures, both historic and non-historic, around a central work area. There are four historic buildings: a maintenance garage, Repair Shop #1, Repair Shop #2, and the Carpenter's Shop. The first three are constructed of brick and mortar; all have

cracked mortar and/or damaged bricks. The fourth building is wood framed and shingled. All were developed by the MDC between 1932 and 1941. The integrity of this landscape has been reduced by the construction of non-historic buildings in the central work area. The Operations Yard Landscape and adjacent Blue Hills Headquarters Landscape jointly form the administrative center of the reservation.

Pine Tree Brook. This landscape contains historic and non-historic water control structures including two dams (one historic), a mill site, and a culvert associated with Unquity Road.

The Pine Tree Brook Reservoir Dam is located on the south side of Canton Avenue, Milton. This concrete dam is non-jurisdictional, meaning that it has a height of less than six feet or a storage capacity of less than 15 acre-feet. Because of this classification, its Hazard Potential has not been assessed. The Neponset River Watershed Association has identified this dam and the dam at the Harling Mill Site for removal in order to restore flow and enhance brook trout habitat (<https://www.neponset.org/happenings/new-small-dam-projects-in-the-pipeline/>).

The Harling Mill Site is located along Pine Tree Brook, just west of Unquity Road. Thomas Harling purchased this plot of land from Jabez Sumner in 1782 and constructed a saw/grist mill powered by the brook. Harling was an experienced millwright who was active in the trade at Lower Mills on the Neponset. He was also a revolutionary who produced gun powder in Stoughton and sold it to forces of the Massachusetts Militia. After Harling's death in 1810 the mill passed through many hands, and was further developed and used until the late 19th century. All that remains today is the presence of a defunct dry stacked dam, a piece of a grist wheel, and scattering of stones thought to be the remains of a foundation for a mill building built by the Clapp family. In comparison with other mill sites from this time period, there is a remarkable presence of historical material, making this site highly significant. For additional information on this mill site, see Mussey (2015).

Information on this landscape's non-historic dam (Pine Tree Brook Flood Control Dam) is presented in Section 2.5 (Infrastructure).

CCC Camp SP-1. From 1933 to 1937 this landscape was home to CCC Camp SP#1, Company 1170. Twenty four buildings were located along Sawcut Notch Path in the Chickatawbut section. Today, only two foundations, some walls, and circulation features remain. Most of the landscape's historic integrity has been lost. A non-historic feature, an engraved granite marker, is also located on this site.

Pakomet Spring. This area was developed by the CCC in 1936 and 1937 as a roadside pull-off, reflecting the increased presence of automobiles in the reservation during the 1930s. It formerly included guard rails, landscaping, tables, and seats. All that remains is a mortared stone wall flanking the entrance to a U-shaped drive.

Nike Integrated Fire Control (IFC) Area. This area was developed in 1953 and 1954 on the summit of Chickatawbut Hill as part of the Nike Battery BO-55 missile complex. The IFC Area, its associated Launcher Area in the Ponkapoag East section, and an off-reservation barracks area comprised one of 35 Nike Ajax missile complexes in New England.

The Nike IFC Area landscape consists of a small campus of four historic buildings with associated non-historic outbuildings. Historic buildings include a dining hall, dormitory, office, and pump house. All are single story masonry block construction buildings. Non-historic buildings and structures include sheds, observation blinds, and an observation tower. The entire complex is surrounded by a chain link fence. The area is currently used by the Massachusetts Audubon Society (Mass Audubon) as the Norman Smith Environmental Education Center at Chickatawbut Hill.

In 2015 the Town of Milton replaced its two water towers (ca. 1932 and 1964) on Chickatawbut Hill with a single water tower. This change necessitated changes to the environmental education center's water system, including installation of a 1,000 gallon holding tank in the pump house and new electronic controls.

Chickatawbut Overlook. The CCC developed this road-side pull off area as a place for motorists visiting the reservation to take in the view of the Boston skyline. It includes an overlook with two small parking areas, a granite wall framing the view toward the city, a small cast iron viewscope, a picnic area with two stone barbecue grills, granite steps, a

pavilion, observation tower (closed to the public), and the viewshed. The overlook is listed in the National Register as a contributing feature of the reservation's historic parkways landscape. The observation tower is also listed in the National Register.

Quincy Quarries. This complex industrial landscape consists of filled and unfilled quarries, remnants of a railway, and one historic building. A variety of objects, such as steel rods and anchor bolts may be found in the quarries; stone debris and cut granite blocks with drilled holes and drill scars may also be found throughout much of this landscape (e.g., GEI Consultants, Inc. 1998). These are associated with the Quincy granite industry, which encompassed over 50 different granite quarries that were active from 1825 through 1963.

The only historic building, the Granite Rail Quarry Compressor House, once housed an air compressor that powered that quarry's pneumatic tools. It is likely the only remaining building associated with quarry operations. The building has multiple problems including a leaking roof, damaged gutters and soffits, a variety of electromechanical problems, and building code violations (SAR Engineering, Inc. 1997). Since the previous RMP (DCR 2011a), a hole has developed in the roof and water damage to the inside of the building has increased significantly.

Lyons Turning Mill and the northern terminus of the Granite Railway are also associated with the Quincy granite industry. Neither is in the reservation or owned by the DCR.

St. Moritz. Between 1929 and 1937 the St. Moritz section was the site of an annual three-day winter carnival that at its peak drew 35,000 people. A ski jump, toboggan run, and warming hut were located near the St. Moritz ponds. All that remains of this infrastructure is the ski jump's concrete foundation and metal beams. Other historic resource associated with the winter carnival may potentially occur in the area.

St. Moritz Pond Dam (MA03373) is located at northern end of St. Moritz Pond. It has a concrete spillway and inlet, and a stone headwall. The origins of this dam are unknown. However, it is believed to predate the use of St. Moritz Pond for winter carnivals (i.e., 1929). This dam is classified as non-jurisdictional (Lenart 2009); its hazard classification

is not assessed. As of 2009, its condition was "Fair" (Lenart 2009).

Indian Line Farm. A number of partially standing stone walls remain from past agricultural use of the site, and they are scattered throughout this area. The absence of other cultural resources at this location is at least partially due to the removal of buildings and structures during site remediation.

Ponkapoag Golf Course. Since the previous RMP (DCR 2011a), administrative control of Ponkapoag Golf Course has transferred from the Blue Hills District to the Boston District. As a result, it is no longer administratively part of the reservation, complex, district, or South Region.

AMC Ponkapoag Camp. This camp is a historic site on the eastern shore of Ponkapoag Pond. It was established in July 1921 by the Appalachian Mountain Club. It includes four historic cottages built between 1922 and 1930. Two are of log construction and the other two are wood frame buildings. Twenty-six additional buildings and structures occur on this landscape. All buildings and structures are AMC-owned; the land on which they sit is owned by the Commonwealth. The rustic cottages and the landscape itself are listed in the National Register. This camp is a good example of early twentieth century cottage development.

YMCA Ponkapoag Outdoor Center. This summer camp, formerly known as Camp Dorchester, has been in continuous use since it was established by the YMCA in 1923. Although there are no historic buildings or structures, the continuous use of this landscape creates the potential for cultural significance.

Nike Missile Launcher Area. Located off Middle Street, Randolph, this facility was constructed in 1953 and 1954 as part of the Nike Battery BO-55 missile complex. Rockets were housed, fueled, and (if necessary) launched from this site as directed by the IFC. (See Nike Integrated Fire Control Area, above, for additional information on this Battery.) Buildings listed in the previous RMP (DCR 2011a) were demolished in 2015. Concrete pads and missile silos are all that remain. This area no longer retains its integrity as an example of cold war missile defense architecture.

Buildings

Royall Street House. This house is one of the few remaining residences on Royall Street and reflects the street's former residential character. Although owned by the DCR, it is under the control of the Massachusetts State Police. A detached garage described in DCR (2011a) has been torn down.

Max Ulin Memorial Skating Rink. In the 1950s and 1960s the MDC constructed two ice skating rinks in the Blue Hills; Ulin rink in the Unquity section and Shea rink in the St. Moritz section. Both are steel frame and masonry block buildings with metal roofs and metal and masonry sheathing. The size and design of these rinks differ, with Ulin having a shed roof and being the larger of the two. Both retain their original exterior appearance and represent a period of functional design.

Randolph Avenue Stable. This shingle style stable, located near the intersection of Chickatawbut Road and Randolph Avenue, was designed by Stickney and Austin to house horses and associated gear for patrolling the eastern side of the reservation. It is one of a number of buildings designed by the firm for the MPC's initial development of the reservation. It is currently used for storage.

Mayor William T. Shea Memorial Rink. In the 1950s and 1960s the MDC constructed two ice skating rinks in the reservation; Shea rink in the St. Moritz section and Ulin rink in the Unquity section. Both are steel frame and masonry block buildings with metal roofs and metal and masonry sheathing. The size and design of these rinks differ, with Shea having a rounded roof and being the smaller of the two. Both retain their original exterior appearance and represent a period of functional design.

Structures

Stone Paddock. A 20 x 60 foot rectangular stone enclosure is located in the woods to the west of the Green Street dressage field in the Little Blue Hill section. Portions have collapsed, and tree growth and fallen limbs further threaten this resource. The significance of this structure is unknown.

Stone Well. A circular, mortared stone lined well is located in a streambed along Base Path in the Great Blue Hill section. Its date of construction is unknown. A chain link fence partially encloses this

structure; openings exist below the fence along the streambed.

Objects

Hemenway Bench. An inscribed granite bench is located on the western slope of Little Blue Hill. Erected as a memorial to Augustus Hemenway (1853–1931), the bench faces west toward the Neponset River and Fowl Meadow.

Boundary Marker. A granite town boundary marker is located along Hillside Street, Canton, and Blue Hill River Road, Milton.

Water Fountain. A cast iron drinking fountain is located in the woods along Bugbee Path in the Houghton's Pond section of the reservation. It is of unknown origin.

Canton/Milton town boundary marker. A granite marker, which identifies the boundary between the towns of Canton and Milton, is located at the base of Great Blue Hill, along Blue Hill River Road/Hillside Street.

Quincy/Milton town boundary marker. This granite marker is located on the south side of Hillside Street, opposite the Broderick Stables.

2.4. RECREATION RESOURCES

The Blue Hills offers both facility-based (e.g., ice skating) and trails-based (e.g., hiking) recreation. The following activities are known to take place:

- Archery (Camp Ponkapoag only)
- Baseball/Softball
- Basketball
- Bicycling, mountain
- Bicycling, road
- Boating, motorized (Ponkapoag Pond only)
- Boating, non-motorized (Hillside, St. Moritz, and Ponkapoag ponds only)
- Camping (AMC Ponkapoag Camp only)
- Canoeing/Kayaking/Paddle Boarding (Ponkapoag Pond only)
- Cricket
- Dog walking (on-leash)
- Fishing
- Geocaching (22 caches as of December 2016)

- Hiking
- Horseback riding
- Hunting (deer only)
- Ice skating/Ice hockey
- Kite flying
- Nature study/Photography
- Orienteering
- Picnicking
- Playground use
- Rock climbing
- Ropes course (Camp Ponkapoag only)
- Running/jogging (includes both road and trail)
- Skiing, cross-country
- Skiing, downhill (includes tubing and snowboarding)
- Snowshoeing
- Soccer
- Swimming
- Volleyball

Recreation Facilities

A variety of recreation facilities are dispersed throughout the Blue Hills. The following summaries briefly describe these facilities. More detailed information may be found in DCR (2011a). Information on special reservation events may be found at the end of this section.

William F. Rogers Ski Area. Located on the western slope of Great Blue Hill, the ski area has 90 acres of skiable terrain, 12 trails, one double chair lift, one 300-foot-long Magic Carpet, and 80-foot-long “Wonder Carpet,” and one handle tow. Snowmaking covers 90%, and lighting 50%, of the skiable terrain. The slopes are used by individuals and college and high school ski teams. Equipment rentals, lessons, and a snack bar are available on site. The ski area is open from 9:00 a.m. to 9 p.m., seven days per week, between December 15th and March 10th. This schedule is contingent on weather. Additional information on ski area operations is available at <http://www.bluehillsboston.com/>.

In 2015, \$1.3 million in improvements were made to the ski area, including widening and resurfacing trails, and snow-making improvements. Lighting

upgrades and a new snowmaking pump house were added in 2016.

Houghton’s Pond Recreation Area. Houghton’s Pond is the reservation’s primary recreation area. It includes a visitor center, concession stand, beach and bathhouse, playground, volleyball court, comfort station, five picnic sites, and three baseball fields. Two of the picnic sites (Sites 1 and 2) are for families and small groups, the other three (Sites 3, 4, and 5) may be reserved by groups of 25 or more people. All ball fields have been upgraded since 2010. Field 1 has a backstop, fenced dugouts, a fenced bull pen, bleachers, and an irrigation system; Field 2 has a fenced backstop, team benches, bleachers, and an open bullpen with a fenced backstop; and Field 3 has a fenced backstop, team benches, and bleachers. When not used for baseball, two soccer fields may be set up. These fields are also used for cricket. Picnic tables are located between the fields and the parking lot.

The Houghton’s Pond waterfront is staffed with lifeguards from 10:00 a.m. until 6:00 p.m., seven days per week, during July and August. Outside of these dates and times, unguarded swimming is available “at your own risk.” Water quality is tested weekly during the beach season. In the past decade (2005–2014) there have been 12 exceedances of *Enterococcus* bacteria standards resulting in 11 closures.



The Houghton’s Pond waterfront is a popular, and free, recreation resource. (See Appendix K for photo information.)

Recent improvements to the recreation area (i.e., new bathhouse, comfort station, and ball fields), coupled with the lack of an entrance fee, are believed to have contributed to the increased use levels observed in recent years. On busy summer

days, the number of visitors is believed to exceed available recreation resources, such as parking. In 2016, DCR began working with the Massachusetts State Police, Town of Milton, and residents to address the issue of visitors to the Houghton's Pond Recreation Area parking in a residential neighborhood west of Houghton's Pond. As of this writing, this issue is still being resolved.

Max Ulin Memorial Skating Rink. Ulin rink is located in the reservation's Unquity section. It is used for hockey, serving as home rink for the Curry College and Milton High School hockey teams, and public skating. There are no other recreation facilities associated with this rink. Information on the rink's operating hours and activities may be found at <http://www.ulinkrink.com/>.

Norman Smith Environmental Education Center at Chickatawbut Hill. Mass Audubon operates its Blue Hills Summer Camp at this location. Activities are primarily educational, with a lesser emphasis on purely recreational activities. (See Section 2.6 for additional information.) The center's historic and non-historic buildings and structures are identified in Tables 2.2.2 and 2.5.1, respectively. Only one feature, an outside dining area with picnic tables, was developed specifically for recreation purposes.

Mayor William T. Shea Memorial Skating Rink. This rink is located in the St. Moritz section of the reservation. It is used for hockey and free skating. Two basketball courts and a Little League field (i.e., Sergeant Robert Allen Curry Ball Field) are situated adjacent to the rink. Information on the rink's operating hours and activities may be found at <http://www.shearink.net/>.

Daniel Michael Shea Memorial Park. This playground is located on Bunker Hill Lane in the St. Moritz Section of the reservation. It has a single feature, a climbing structure.

St. Moritz Horseshoe Pitching Club. A private recreation facility, the St. Moritz Horseshoe Pitching Club, is located opposite 101 Bunker Hill Lane, Quincy, in the St. Moritz Section of the reservation. It has six lighted clay horseshoe courts, benches for spectators, and a storage shed. Additional information on the club and its facilities may be found at <http://www.newenglandhorseshoes.com/stmoritz.htm>.

Ricciuti Drive Athletic Fields. This facility includes one soccer and four baseball fields. Each baseball field has a backstop, two dugouts, and one or more bleachers. A combination concession building/restroom is located centrally among these fields. A soccer field is located just west of the ball fields. Identified as "Quarry Hills Ball Fields" at the entrance, there has been no official naming of these fields or facilities.

John P. Metropolis Skating Rink. Since the previous RMP (DCR 2011a), administrative control of Ponkapoag Golf Course has transferred from the Blue Hills District to the Boston District. As a result, the golf course and associated facilities are no longer administratively part of the reservation, complex, district, or South Region. Because this rink is associated with the golf course, it is not included in this RMP.

Massasoit Field. This soccer field is located on Randolph Street in Canton along the southern edge of Ponkapoag Golf Course, immediately east of Massasoit Community College. Since the previous RMP (DCR 2011a), administrative control of Ponkapoag Golf Course has transferred from the Blue Hills District to the Boston District. As a result, the golf course and associated facilities are no longer administratively part of the reservation, complex, district, or South Region. Because Massasoit Field is associated with the golf course, it is not included in this RMP.

Fisherman's Beach. A car-top boat launch and fishing access site on the shore of Ponkapoag Pond.

YMCA Outdoor Center. The YMCA of Greater Boston offers a summer day camp, "Camp Ponkapoag," at its Outdoor Center located just north of Ponkapoag Pond. The center's recreation infrastructure includes a swimming pool, basketball court, high and low ropes courses, multi-use athletic field, and three pavilions. Among the camp's recreation activities are archery, baseball, basketball, dance, use of ropes courses, hiking, kickball, orienteering, scavenger hunts, soccer, and swimming. These facilities are available to campers and are also available for rental. Additional information is available at <http://ymcaboston.org/menino-day-camp>. This facility is within the Fowl Meadow and Ponkapoag Bog ACEC. (See Section 1.3 for additional information on ACECs.)

Ponkapoag Camp. The Appalachian Mountain Club (AMC) operates a year-round camp on the eastern shore of Ponkapoag Pond within the reservation. This facility includes 20 cabins that can accommodate a total of 85 campers, tent sites, and a waterfront on Ponkapoag Pond. Fees are charged throughout the year for camping, and during the summer for day use. Recreation activities are camping, hiking, paddling, skiing, and swimming. Additional information is available at <http://www.ponkapoagcamp.org/>. This facility is within the Fowl Meadow and Ponkapoag Bog ACEC. (See Section 1.3 for additional information on ACECs.)

Water quality at Ponkapoag Pond is tested weekly during the beach season. In the past decade (2005–2014) there has been one exceedance of *E. coli* standards, but no beach closures.

High Street Athletic Fields. North Randolph Little League constructed, manages, and uses this facility. There are two fields (i.e., Cady Field and Wakeling Field); each has two dugouts and a backstop. A concession building is located adjacent to these fields; it has a deck with picnic tables.

Picnic Sites. There are three small picnic areas in the reservation. The first is located atop Great Blue Hill at the Eliot Pavilion, the second at Chickatawbut Overlook, and the third at the West Street, Braintree parking lot. These picnic locations are in addition to those described above.

Special Events. The Blue Hills annually hosts four large recreation-centered events. They are:

- First Day Hikes; January 1. Ranger and volunteer led hikes to start the New Year. 2015 estimated attendance: 1,200.
- Maple Sugar Days; mid to early March. Joint DCR and MAS programming centered on maple syrup production and the coming of spring. 2015 estimated attendance: 1,350.
- Blue Hills Fishing Festival; July. DCR, DFG, and Friends of Blue Hills event focused on encouraging participation in fishing. 2015 estimated attendance: 300.
- Dog Sled Fun Run; November. DCR in association with the Yankee Siberian Husky club and the Boston Snow Dogs. Programming

on dog sledding in New England. 2015 estimated attendance: 150.

Ongoing recreation activities include Southeastern Mass Adult Walking Club hikes, which had over 260 participants in 2014, and the Friends of the Blue Hills' Peek-A-Blue Hike series for parents and toddlers, which is held every other Tuesday. Other groups with recurring hikes include the Boston Chapter of the AMC and the Blue Hills and Beyond Hiking Club, and Random Group of Hikers. The last two groups are associated with MeetUp.com; their events are not coordinated with DCR personnel.



Norman Smith, Director of the Trailside Museum presents a program on snowy owl ecology at a Maple Sugar Days event. (See Appendix K for photo information.)

2.5. INFRASTRUCTURE

Property Boundary

The park is irregularly shaped and largely surrounded by residential and commercial development. Private and municipal recreation and conservation lands abut large portions of the park's northern boundary. Throughout its history, highways have fragmented the park isolating formerly contiguous areas (i.e., Ponkapoag, Ponkapoag East, and West Street). The most recently acquired section, Ponkapoag Brook, is isolated from the rest of the reservation by residential neighborhoods. The park's boundaries are not posted; boundaries adjacent to highways are fenced.

Boundary information was verified and corrected in GIS as part of the previous RMP planning process (DCR 2011a).

Abutter encroachments appear to have occurred along Green Street and Washington Street, Canton;

Ricciuti Drive and Willard Street, Quincy; and Canton Street, High Street, Sunset Drive, and Turner Drive, Randolph.

In 1994, the Commonwealth acquired two properties on the northwest side of Hemenway Hill; their former owners were granted some rights in these properties. Owners of the Carberry property, and their successors in title, were granted “the right and easement to use said right of way solely for pedestrian and non-vehicular recreational purposes...for access to and egress from their remaining land” (Book 10586; Pages 144–148). The Order of Taking for the Bartol property granted the former owners: the right to “operate and maintain a water supply system and spring and to draw water from Balster Brook”; “the right and easement, for drainage purposes, to construct, maintain, and repair pipes, culverts, ditches or any other necessary structures or fixtures”; and the right “to keep blocks, boulders, and rocks where presently stored on a portion of Lot 1” (Book 1059; Pages 363–374). The Bartol Order of Taking also established a right of way for the Commonwealth across land not acquired in the taking, “for emergency and limited purposes” in order to access the land acquired.

Buildings and Structures

Most of the Blue Hills’ buildings and structures are historic; relatively few are recent. (Table 2.5.1) Construction over the past 50 years has mostly been of recreation facilities or outbuildings that supplement existing buildings and structures. Major developments during this time period include:

- YMCA Ponkapoag Outdoor Center (1960s); followed by an additional period of construction (mid-1990s)
- Dugouts and a concession stand at High Street, Randolph (ca. 1985)
- Ricciuti Drive athletic fields and associated facilities (2003)
- Trailside Museum outdoor exhibit upgrades, including addition of Rocky Outcrop Exhibit (2005)
- Ponkapoag Dam repair and construction of a new spillway (2009)
- MWRA covered water storage facility and reconstruction of the Blue Hills Reservoir and dam (2009–2011)
- Houghton’s Pond Recreation Area improvements, including renovated athletic fields; construction of a new bathhouse, accessible ramp with interpretive panels, Marigold Marsh observation platform, and demolition of the existing comfort station and construction of a new comfort station (2011–2013)
- Construction of new pump house at the William F. Rogers Ski Area (2016)



The Houghton’s Pond bathhouse, constructed in 2012, provides modern amenities for beach goers. (See Appendix K for photo information.)



Comfort station at Houghton’s Pond Recreation Area; it serves both the beach and athletic fields. (See Appendix K for photo information.)

Nearly all non-historic buildings and structures are in use by park personnel or partners. Exceptions include a shed of unknown ownership at the Ricciuti Drive Athletic Fields and the Town of Randolph’s pump station on Turner Drive.

Table 2.5.1. Non-historic buildings and structures of Blue Hills Reservation.

Location and Infrastructure ^a	Date ^c	Condition ^b	In Use ^d	Utilities ^e
GREAT BLUE HILL				
Trailside Museum				
Storage shed (barn)	1981	2	Y	E
N-Star Rocky Outcrop Exhibit	2008	1	-	-
Maintenance garage	1976	2	Y	E
Red-tailed hawk enclosure ^f	2008	1	-	-
Turkey vulture/great-horned owl enclosure ^f	2008	1	-	-
Snowy owl enclosure ^f	2008	1	-	-
Deer shed ^f	2008	3	-	-
Raptor cages (3) ^f	2008–2014	1	-	-
Duck blind	1998	3	-	-
William F. Rogers Ski Area				
Beginner area - upper shed - A frame ^f	2008	3	S	-
Pump House (base of slope)	2016	1	S	E, W
Chair lift building ^f	-	2	S	E
Chair lift operator's building	-	3	S	E
Shed at bottom of Big Blue ^f	-	2	S	E
Pulley platform	ca. 1978	3	-	-
Building adjacent to pulley platform	-	3	S	E
Ski patrol shed	-	3	S	-
Shed with crescent ^f	2008	2	S	-
Unidentified building	-	3	S	-
Meteorological Observatory – Kite shed	1999	3	Y	-
Motorola building^f	-	2	Y	E
State Police building^f	-	3	Y	E
DEP Photochemical Assessment Monitoring Station^f	2001	1	-	E
Fuel cell shed^f	-	2	Y	E
Water Tower^f	-	-	Y	W
BROOKWOOD FARM				
Garage/Sugar Shack	-	S	N	E
Greenhouse^f	ca. 2007	S	N	-
HOUGHTON'S POND				
Houghton's Pond Recreation Area				
Accessible Ramp System	2012	2	-	-
Marigold Marsh observation platform	2012	1	-	-
Bath House	2012	2	S	E, P, S, W(S)
Changing structure - adjacent to Bath House	2012	1	-	-
Storage shed	ca. 2012	2	Y	-
Comfort station - Blue Hill River Road	2013	1	S	E, S, W(S)
HEADQUARTERS AREA				
Tool Shed – Trail Watch	2007	2	Y	-
OPERATIONS YARD				
Salt storage shed	1981	4	Y	-
UNQUITY ROAD				
Pine Tree Brook				
Pine Tree Brook Flood Control Dam (MA00825), with two-stage drop inlet drop spillway ^f	1971	3	-	-

Blue Hills Reservation

Location and Infrastructure ^a	Date ^c	Condition ^b	In Use ^d	Utilities ^e
CHICKATAWBUT HILL				
Norman Smith Environmental Education Center at Chickatawbut Hill				
Garage	2002	1	Y	E
Shed ^f	2010	2	S	-
Bird blind ^f	1998	2	S	-
Tower ^f	1980	2	S	E
Photovoltaic array	2010	1	-	E
Water Tower^f	2015	1	-	-
Blue Hills Reservoir Area				
Blue Hills Reservoir Dam (MA00826)	2009	3	-	-
Primary spillway	2009	3	-	-
Emergency spillway - gate vault	2009	3	-	-
Covered Storage Tank 1 ^f	2009	-	-	-
Covered Storage Tank 2 ^f	2009	-	-	-
MWRA building ^f	2011	-	-	-
Storm water management structures	-	3	-	-
QUINCY QUARRIES				
Quincy Youth Baseball				
Comfort station and concession building ^f	ca. 2003	-	-	-
Dugouts ^f (8)	ca. 2003	-	-	-
Cell tower building – AT&T mobility fixed asset site #10000074^f	ca. 1990	-	-	-
Shed^f	-	-	-	-
ST. MORITZ				
St. Moritz Horseshoe Club shed^f	-	4	Y	E
PONKAPOAG				
Pump Station No. 6 – Turner Drive^f	-	-	-	-
AMC Ponkapoag Camp				
Cabin 1 shed ^f	-	-	-	-
Cabin 11 shed ^f	-	-	-	-
Susan Rapson Lemish Nature Center ^f	-	-	-	-
Men's privy ^f	Post 1949	-	-	-
Women's privy ^f	Post 1949	-	-	-
Storage building - former privy ^f	Post 1949	-	-	-
YMCA Ponkapoag Outdoor Center (former Camp Dorchester)				
Lodge ^f	-	-	-	-
Shed at lodge ^f	-	-	-	-
Bath house ^f	1995	-	-	-
Arts and crafts cabin ^f	-	-	-	-
Nature cabin ^f	-	-	-	-
Storage cabin ^f	-	-	-	-
Pool house ^f	ca. 1968	-	-	-
Pool well shed ^f	ca. 1968	-	-	-
Swimming pool ^f	ca. 1968	-	-	-
Main well pump shed ^f	-	-	-	-
Pavilion 1 ^f	-	-	-	-
Pavilion 2 ^f	-	-	-	-
Pavilion 3 ^f	ca. 1994	-	-	-

Location and Infrastructure ^a	Date ^c	Condition ^b	In Use ^d	Utilities ^e
PONKAPOAG EAST				
North Randolph Little League – North Street				
Concession building ^f	ca. 1985	-	-	-
Cady Field dugouts ^f (2)	ca. 1985	-	-	-
Wakeling Field dugouts ^f (2)	ca. 1985	-	-	-

- a. Geographic sub-regions as identified in DCR (2011a).
- b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- c. Date of construction provided, when known.
- d. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- e. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- f. Infrastructure located on DCR property, but not owned or controlled by the DCR. Its condition is not assessed.

Utilities vary among buildings. (Tables 2.5.1) None of the structures, and few of the buildings, have utilities. Storage sheds and seasonal camp facilities often lack utilities; buildings with offices, food concessions, and comfort stations typically have utilities. Buildings associated with utilities or communications also tend to have utilities.

All potable water is provided by municipal water departments, with the exception of the YMCA Ponkapoag Outdoor Center, which obtains its water from a well. This well is classified by the DEP as a Transient Non-Community Water System. Wells also provide water to the YMCA's swimming pool and serve as a source of water for irrigating the North Randolph Little League Fields on High Street. The AMC Ponkapoag Camp, which was identified as having Transient Non-Community Water System in the 2011 RMP (DCR 2011a), indicates that it no longer has an on-site water supply.

Most buildings with plumbing are connected to a municipal sewer. Exceptions include the following buildings and facilities: Blue Hill Meteorological Observatory, Brookwood Farm Gatekeeper's House, Henry Saltonstall Howe House, Norman Smith Environmental Education Center at Chickatawbut Hill, and the YMCA Ponkapoag Outdoor Center; all are connected to septic systems. Although the State Police Barracks has been connected to municipal sewer, a portion of the building is suspected to remain connected to a septic system (Haak 2009). The AMC Ponkapoag Camp has two privies that discharge directly into the ground; during the summer they are supplemented with portable toilets.

Deficiencies have been observed at some of the reservation's dams. Fourteen "minor operational and maintenance" deficiencies were identified for the Town of Milton owned Pine Tree Brook Dam (MA00825; Weston & Sampson 2012). Fourteen deficiencies were also identified at the recently renovated Blue Hills Reservoir Dam (MA00826; GZA GeoEnvironmental, Inc. 2011a). An inspection of the Ponkapoag Dam (MA03107) conducted shortly after its reconstruction found no deficiencies (GZA GeoEnvironmental, Inc. 2009a). Recent inspection reports were unavailable for Pine Tree Brook Reservoir Dam (MA00824) and the St. Moritz Pond Dam (MA03373), both of which are historic.

Roads

There is no main park entrance; visitors may access the park from a variety of roads. Park Headquarters and the Houghton's Pond Recreation Area are located on Hillside Street in Milton, although the latter may also be accessed from Blue Hill River Road. The Blue Hills Trailside Museum, William F. Rogers Ski Area, and Blue Hills Meteorological Observatory are all accessed from Route 138. Other recreational facilities in the reservation are accessed from a variety of public roads.

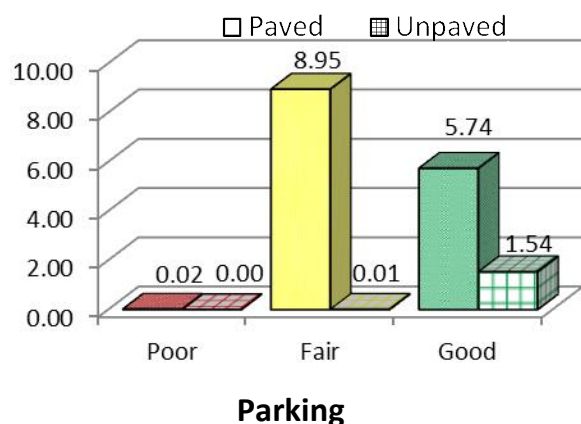
Interstate I-93 and State Route 24 are multi-lane highways that pass through the Blue Hills; they isolate sections of the reservation from one another. State Routes 138 and 28 are two-lane roads primarily used to pass through the reservation. A series of historic parkways extends throughout the reservation, serving as the main internal road

network; all are publically accessible. (See Section 2.3 for more information on these parkways). All highways, and nearly all parkways, serve as commuter roads.

Traffic volumes are high on interior park roads, with an average daily volume of 10,642 vehicles on Hillside Street near the police barracks and 5,913 vehicles on Chickatawbut Road just west of Route 28 (Beta Group 2011). Public input received while preparing this RMP revealed that some park users (e.g., bicyclists) view the volume and speed of traffic on interior park roads as a safety threat and a deterrent to park use. Similar concerns contributed to the development of traffic and safety related recommendations in the previous RMP (DCR 2011a); they have not yet been implemented.

In addition to the public roads, there are approximately 16.3 miles of administrative and limited access roads (e.g., forest roads, Summit Road). Their conditions are summarized, by surface type, in Figure 2.5.1.

Figure 2.5.1. Condition and length (in miles) of roads at Blue Hills Reservation.



There are 1,764 parking spaces at the Blue Hills (Table 2.5.2). Most are available to the general public; 108 are for restricted use. Although public parking is available throughout the Blue Hills, the majority of spaces are associated with just seven areas: Route 138 Park and Ride, Trailside Museum, Houghton's Pond Recreation Area, Ulin rink, Shea rink, Ricciuti Drive athletic fields, and Ponkapoag Golf Course. Collectively, lots in these areas account for 84.2% of unrestricted public parking for the reservation. Several small, gravel lots are located at the intersections of major roads and hiking trails. On busy days, the demand for parking at Houghton's

Pond exceeds the supply, resulting in vehicles being parked along the shoulders of roads and parkways and in the residential neighborhood associated with Silver Brook, Adrian, and Eileen roads, Milton. Parking is also associated with special facilities (e.g., Norman Smith Environmental Education Center, AMC Ponkapoag Camp), but access is restricted to visitors to those facilities. Two sections of the reservation, Hemenway Pond and Ponkapoag Brook, have no parking.

Table 2.5.2. Number of public parking spaces, by location and type, at Blue Hills Reservation.

Location	HP	Restricted	Other	Total
Route 138 Park and Ride	0	0	116	116
Great Blue Hill radar pad	0	0	16	16
Hillside St. at Accord Path	0	0	11	11
Trailside Museum - North lot	5	0	100	105
Trailside Museum - South lot ^a	4	10	73	87
Brookwood Farm - Main lot	0	0	10	10
Brookwood Farm - Community Farm ^b	0	5	0	5
Brookwood Farm - Conference lot ^c	0	20	0	0
Houghton's Pond - Hillside St. ^d	13	0	256	269
Houghton's Pond - Site 5	5	0	75	80
Houghton's Pond - Ball fields ^e	3	0	66	69
Houghton's Pond - Comfort station ^e	4	0	9	13
Houghton's Pond - Blue Hill River Rd. ^e	0	0	22	22
Bugbee path at Hillside St.	0	0	9	9
South Region Office - Short-term ^f	0	0	4	4
South Region Office - HP parking	1	0	0	1
Hillside St. - Opposite State Police ^g	0	4	11	15
State Police Barracks ^h	0	22	0	22
Ulin Memorial Rink	4	0	83	87
Unquity Rd. at Base Path	0	0	8	8
Pine Tree Brook at Harland St.	0	0	2	2
Route 28 at Skyline Trail	0	0	26	26
Route 28 at Bouncing Brook Path	0	0	7	7
Route 28 at Bugbee path	0	0	8	8
Blue Hills Reservoir	1	0	4	5
Chickatawbut Rd. at Braintree Pass Path	0	0	9	9
Chickatawbut Overlook	0	0	34	34
Environmental Education Center ⁱ	1	1	23	25
Wampatuck Rd. at Sawcut Notch Path	0	0	4	4
Ricciuti Dr. - Quarry access	1	0	5	6
Ricciuti Dr. - Athletic fields	6	0	283	289
St. Moritz Horseshoe Club ^j	0	14	0	14
Shea Memorial Rink	4	0	83	87

Location	HP	Restricted	Other	Total
Ponkapoag Golf Course ^k	7	0	173	180
Fisherman's Beach	0	0	22	22
AMC Ponkapoag Camp ^l	0	22	8	30
Ponkapoag Trail at I-93 ramp	0	0	11	11
YMCA Ponkapoag Outdoor Center ^m	0	10	18	28
North Randolph Little League	2	0	21	23
West Street	0	0	5	5
Total	61	108	1,615	1,764

- a. Ten spaces are reserved for museum employees.
- b. Entire lot is for use by farm employees or CSA members.
- c. Space restricted for use by meeting attendees.
- d. Includes spaces along Hillside Street.
- e. Closed from mid-November through mid-April.
- f. Ten-minute parking.
- g. Four spaces are reserved for the State Police.
- h. Spaces reserved for police cruisers, staff, and those with police business.
- i. One space reserved for resident.
- j. Restricted to use by St. Moritz Horseshoe Club.
- k. These spaces are not in the reservation, but are often used by visitors to the reservation.
- l. Restricted spaces are associated with cabins.
- m. Restricted spaces are adjacent to the main lodge.



On busy days, parking lots around Houghton's Pond fill early and visitors park along road shoulders. Unquity Road, a historic parkway, is shown in this photo. (See Appendix K for photo information.)

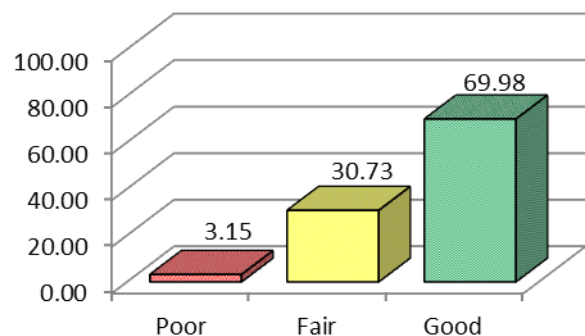
Some activities on the reservation use parking lots located off the reservation. Users of Massasoit Field park on the Canton Campus of Massasoit Community College. Group hikes in the Ponkapoag East section of the Blue Hills often start from the Town of Randolph's Margaret L. Donovan School on Reed Street, with hikers using the school's parking lot.

Changes in the reservation's parking since the 2011 RMP (DCR 2011a) are associated with Blue Hill River Road in the Houghton's Pond Recreation Area. Both parking and traffic flow were reconfigured as part of ball field reconstruction in 2011 and construction of a new comfort station in 2013. An additional 120 parking spaces are planned for the north side of Blue Hill River Road, at the site of the former comfort station (DCR 2011b). A 2003 agreement between the Commonwealth of Massachusetts and Hart Family Limited Partnership included a requirement that the parking lot to be constructed on former-DCR property would include a minimum of 10 parking spaces permanently dedicated for use by patrons of the reservation. Because the lot has not yet been constructed, these dedicated spaces are not yet available.

Trails

The Blue Hills has approximately 104 miles of official trails that provide access to virtually every one of its hilltops, wetlands, and ponds. The number of miles of official trails, by condition, is presented in table 2.5.4. Because fire roads and other forest roads in the reservation are used primarily as recreation trails, they are included in Figure 2.5.2. In the previous RMP (DCR 2011) they were tallied as roads. This change in classification is responsible for large changes in the miles of roads and trails reported in the 2011 versus the current RMP.

Figure 2.5.2. Condition and length (in miles) of official trails at Blue Hills Reservation.



Two portions of the reservation's trails network, the Skyline Trail and the Healthy Heart Trail, have their own identities. The Skyline Trail extends from the reservation's boundary with the Neponset River Reservation (i.e., Fowl Meadow), eastward to its western boundary at Shea Rink. This approximately

nine-mile long trail passes over the reservation's highest peaks. Along its course it crosses four internal parkways and two state highways (Routes 138 and 28); only one crossing, Hillside Street, has a crosswalk. Signalized crosswalks on Routes 138 and 28 are not associated with, or accessible from, the Skyline Trail. A one-mile-long loop trail around Houghton's Pond has been identified as the Blue Hills' Healthy Heart Trail. This trail, which was established to promote exercise, is not universally accessible.

In addition to official trails, there are 16.66 miles of illegal trails. These trails were constructed without necessary approval or environmental review, are not on the trails map, and are not maintained by the DCR.

Kiosks and Signs

There are multiple kiosks, bulletin boards, and map boards. Kiosks (i.e., free-standing, enclosed display cases with park information) are present at the following locations:

- Trailside Museum (2); north and south parking lots
- Route 138 Park and Ride lot, southwest corner
- Great Blue Hill, Eliot Memorial Landscape; at trail intersection marker 1055
- Brookwood Farm
- Houghton's Pond (4); main lot, beach access gate, Picnic Sites 3 and 4, and athletic fields
- Bugbee Path; opposite Park Headquarters
- Chickatawbut Road; at Braintree Pass Path parking lot
- Chickatawbut Road; at overlook
- Shea Rink; southwest corner of parking lot
- Ponkapoag Trail; exit 3, Route 93
- Fisherman's Beach; between parking lot and Ponkapoag Pond
- West Street parking lot

The Blue Hills' rangers maintain an inventory of all bulletin and map boards.

The number of signs at the Blue Hills reflects the abundance of entrances, parkways, sites, and facilities. Gateway Main Identification Signs, all

bearing the words "Blue Hills Reservation," are located at the following locations:

- Intersection of Blue Hill River Road and Hillside Street, Milton
- Southwest corner of Chickatawbut Road and Route 28, Milton
- Southeast corner of Chickatawbut Road and Route 28, Milton
- Route 28 at Pakomet Spring, Quincy
- Intersection of Chickatawbut Road and Granite Street, Braintree

Site/Facility Identification Signs are located at the following locations:

- Trailside Museum; Route 138 at museum entrance, Milton
- William F. Rogers Ski Area; Route 138 at south parking lot entrance, Canton
- Hillside Street; northeast of intersection with Blue Hill River Road, Milton
- Houghton's Pond Picnic Sites and Ball Fields
- Houghton's Pond; Hillside Street at entrance to recreation area.
- Blue Hills Reservation Headquarters; Hillside Street
- Blue Hills Operations; Hillside Street, Milton
- Unquity Road; north of intersection with Hillside Street, Milton
- Max Ulin Memorial Skating Rink; Unquity Road
- Unquity Road; at intersection with Canton Avenue, Milton
- Hillside Street; near intersection of Hillside Street and Chickatawbut Road, Milton
- Chickatawbut Road; north road shoulder, east of Route 28, Milton.
- Chickatawbut Road; intersection of Chickatawbut Road and Granite Street, Braintree
- William T. Shea Skating Rink: Operated by the O'Toole Company; Willard Street, Quincy. Chapter 204 of the Acts of 1962 requires a "suitable marker" identifying the rink as "Mayor William T. Shea Memorial Rink"

There are three Cantilevered Identification signs; they are:

- Brookwood Farm
- Norman Smith Environmental Education Center at Chickatawbut Hill; this is the suitable marker required by Chapter 446 of the Acts of 2008
- Ponkapoag Trail

Other signs were not inventoried for this RMP.

Iron Ranger

An iron ranger is located at the entrance to the Houghton's Pond Recreation Area.

Memorials and Markers

The following memorials and markers are known to be present in the Blue Hills:

- Augustus Hemenway Bench (n.d.); west slope of Little Blue Hill
- History of Weather Observatory metal plaque (n.d.); Great Blue Hill
- James M. Redman memorial engraved stone (n.d.); Great Blue Hill
- Founding of Weather Observatory metal plaque (1885+); Great Blue Hill
- National Register designation metal plaque (1980); Great Blue Hill
- Weather Observatory Centennial (1985), engraved stone; Great Blue Hill
- National Historic Landmark designation metal plaque (1989); Great Blue Hill
- World's first continuous sounding of the atmosphere by kite, wooden sign on Kite Shed; Great Blue Hill
- Eliot Memorial Bridge (1904); Great Blue Hill
- Daniel M. Casey memorial engraved stone plaque (ca. 1994); Great Blue Hill, between weather observatory and ski area
- Brian T. Broderick Visitor Center and Stables engraved stone (2001); Headquarters Area, southwest side of stable
- Officer Robert P. Dana memorial stone with metal plaque (1984); Headquarters Area, opposite entrance to police barracks
- Camp SP #1 Company 1170 engraved stone; Chickatawbut, former CCC Camp

- Daniel Michael Shea Memorial Park, engraved stone (ca. 1984); Bunker Hill Lane, Quincy
- Charles L. Bowley Memorial Bridge (i.e., horse bridge over Route 24); two markers, as required by Chapter 407 of the Acts of 2014
- Bob Foley and Tommy Holmes metal plaque (2008); north side of Quincy Youth Baseball combined concession building/comfort station, Ricciuti Drive
- Ponkapoag Boardwalk engraved stone (ca. 1988); boardwalk entrance

The following marker is required by an Act of the Legislature, but is not present on the reservation:

- Sergeant Robert Allen Curry Ball Field; "suitable marker" (Chapter 770 of the Acts of 1969)

Fifty-nine granite trail markers were erected in 1985 (Wendland 1985). These posts are located at trailheads and where trails cross roads.

There are two unmarked memorial trees at Brookwood Farm. One is in memory of Tom Bates, a long-time DCR employee who died of cancer in 2013, and the other for an unknown honoree.



Officer Robert P. Dana Memorial; erected in honor of an MDC police officer who died in the line of duty. (See Appendix K for photo information.)

2.6. INTERPRETATION

The Blue Hills Trailside Museum is the reservation's interpretive center. It is operated by Mass Audubon in partnership with the DCR. The museum includes a variety of interpretive exhibits and indoor and outdoor live animal displays with associated interpretive panels. Interpretive programming is

provided by Mass Audubon employees or volunteers in the museum's auditorium and on its grounds. The Trailside Museum and associated trails are accessible; audio tours and Braille guides are available. In Fiscal Year 2015, the general museum attendance was 13,538 and the estimated outdoor grounds attendance 58,473 (MassAudubon 2015). Ninety-two public programs were offered and 4,693 attendees participated in 79 on-site programs. Additional information on the museum and its programs may be found at <http://www.massaudubon.org/get-outdoors/wildlife-sanctuaries/blue-hills-trailside-museum>.

Mass Audubon offers additional interpretive programming through its Blue Hills Summer Camp held at the Norman Smith Environmental Education Center at Chickatawbut Hill. This American Camp Association accredited camp offers preschoolers through ninth graders "a unique location to discover nature through hands-on exploration, creative play, and active learning." Programming is offered Monday through Friday, from late June through mid-August. Registration and payment are required in advance; fees differ among Mass Audubon member and non-members. Six hundred and twelve campers attended in Fiscal Year 2015 (MassAudubon 2015). Information on Mass Audubon's summer camps, including Blue Hills Summer Camp, may be found at <http://www.massaudubon.org/get-outdoors/summer-camps>.

DCR Rangers offer a variety of special events and ongoing programming, much is recreational. These events and activities were previously identified in **Section 2.4. Recreation**. Of these activities, Maple Sugar Days has the largest interpretive component, with presentations on Native American, Colonial, and modern maple sugar production techniques. This programming is presented by DCR and Mass Audubon employees, the Friends of the Blue Hills, and other volunteers.

The Blue Hill Observatory and Science Center offers free public tours on Saturdays, Sundays, and holidays. These tours include an interpretive component on meteorology. The observatory also offers a variety of for fee group activities that also center on meteorology and climate science. A list of these activities is available on the Observatory's web site at <http://bluehill.org/observatory/programs/>.

Activities at the YMCA's Camp Ponkapoag are primarily recreational in nature. However, programming is designed so that campers "gain awareness and appreciation of the great outdoors through hiking, outdoor living skills, and science activities." Additional information is available at <http://ymcaboston.org/menino-day-camp>.

Interpretive displays are located at the Houghton's Pond Recreation Area, Trailside Museum (see above), and the Blue Hill Observatory. Five interpretive panels were installed alongside Marigold Marsh in 2012. Four are located on the accessible ramp system between the Houghton's Pond main parking lot and Marigold Marsh and the fifth is located on the accessible observation platform. The following panels introduce visitors to the ecology of Marigold Marsh:

- Walk on the wild side
- We've got you covered
- Why wetlands matter
- Nature's magic show
- Be a wetlands explorer (observation platform)



This interpretive panel is one of five that educate the public about the ecology of Marigold Marsh. (See Appendix K for photo information.)

The following interpretive panel is located in the Houghton's Pond Recreation Area, adjacent to the playground:

- Houghton's Pond: Ice ages; Native Americans; rural landscape; swimming hole

An interpretive panel located on the fence surrounding the weather observatory's instruments explains:

- The power of Hydrogen

2.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

The Blue Hills is managed by MassParks staff; there are 10 year-round personnel and 42 seasonal positions. (Table 2.7.1) Most seasonal employees provide additional staffing from Memorial Day through Columbus Day; one position is winter only.

Table 2.7.1. MassParks personnel assigned to Blue Hills Reservation, as of 2016.

Job Title	Number of Positions
<i>Year-round Personnel</i>	
Administrative Assistant II	1
District Manager ^a	1
Forest and Park Regional Coordinator	1
Forest and Park Supervisor I	1
Forest and Park Supervisor II	2
Laborer I ^b	2.5
Recreation Facility Supervisor I ^b	0.5
Recreation Facility Supervisor III	1
<i>Seasonal Personnel</i>	
Forest and Park Supervisor I	3
Forest and Park Supervisor I (Short-term) ^c	1
Forest and Park Supervisor II	1
Laborer I (Long-term) ^{c, d}	4
Laborer I (Short-term) ^c	8
Life Guard I	15
Life Guard II	2
Office Support Specialist (Long-term) ^{c, d}	1
Recreation Facility Supervisor I (Short-term) ^c	1

a. This position is not part of the Field Operations Team, but provides direct support to the Team.

b. One of the laborers functions seasonally as a Forest and Park Supervisor.

c. Long-term seasonal positions begin prior to the second Sunday before Memorial Day; short-term seasonal positions begin after that date.

d. Includes one long-term seasonal winter position.

In addition to MassParks staff, several other DCR employees are based at, and provide support for, the Blue Hills. (Table 2.7.2) These employees' responsibilities are not limited to the reservation or Complex.

Table 2.7.2. Other DCR personnel that provide support to the operation of Blue Hills Reservation, as of 2016.

Job Title	Number of Positions 2016
<i>Year-round Personnel</i>	
Civil Engineer IV	1
Mechanic III	1
Mechanical Engineer IV	1
Ranger I	1
Ranger II	2
Visitor Services Supervisor	1
<i>Seasonal Personnel</i>	
Ranger I (Long-term)	2

Partnerships and Volunteers

Mass Audubon operates the Trailside Museum and the Norman Smith Environmental Education Center at Chickatawbut Hill under a Memorandum of Understanding with the DCR. Prior to this arrangement, the trailside museum was funded, staffed, and operated by the MDC. Mass Audubon has assumed the major role in providing environmental education to park visitors. They also provide staff and interpretive programming for large, park-wide events, such as Maple Sugar Days.

The Friends of the Blue Hills (Friends) is a non-profit organization whose mission is to "protect and preserve the Blue Hills Reservation in its natural state." They advocate for the park and its resources, offer educational and recreational programming, operate an Adopt-a-Trail program, and conduct volunteer projects. Inquiries about volunteer opportunities in the park are directed to the Friends.

Brookwood Community Farm is a non-profit organization based in Canton and Milton. It is "dedicated to preserving historic farmland through sustainable agriculture." It currently farms approximately 3 acres in the Brookwood Farm section of the reservation.

Blue Hills Observatory Science Center is a non-profit organization that records weather data, preserves and displays historic meteorological instruments and records, and conducts educational programs for schools and the general public.

Ski Blue Hills Management, LLC is a for profit company that operates the William F. Rogers Ski

Area. They operate and maintain the facilities and provide recreational opportunities for park visitors.

Several partner organizations have joined together to create the Coalition for a Better Blue Hills. The coalition's objective is "to secure financial, political, and public support for the Blue Hills Reservation." Additional information on this group may be found at <http://friendsofthebluehills.org/coalition/>.

Many partners recruit volunteers to assist with the management of their operations and facilities. Brookwood Community Farm uses volunteers for "all aspects of planting, growing, and harvesting our crops." The Greater Boston YMCA solicits corporate volunteer groups who assist with an annual camp clean up. Campers at the AMC Ponkapoag Camp help maintain the facilities; those that volunteer 25 or more hours per year get priority for summer reservations the following year.

Public Safety

The Massachusetts State Police (Station H-7, Blue Hills Barracks) are the primary law enforcement agency; the Environmental Police (Regions C-7 and M-3) and municipal departments provide support, as needed. Fire control is provided by municipal fire departments with the assistance of DCR Fire Control District 4 personnel based at F. Gilbert Hills State Forest in Foxborough. Ambulances are provided by municipal fire departments.

Funding

Conservation Trust Fund

Donations placed in the iron ranger go into the Conservation Trust Fund for use at the Blue Hills. (See Other Revenues, below.) As of April 2016, the trust fund balance was approximately \$238.

Retained Revenue

There are no retained revenues.

Other Revenues

The Blue Hills receives lease revenues associated with the WGBH building and facility atop Great Blue Hill; a New Cingular Wireless telecommunications tower and building at Quincy Quarries, an annual fee associated with the gas pipeline, and revenue from the leasing the food concession at Houghton's Pond. As of April 2016, the balance was approximately \$1, 246,000.

2.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 2.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of the Blue Hills. Legal agreements unique to the reservation are listed in Table 2.8.1.

In the mid-1960s, two development projects were partially funded through the Land and Water Conservation Fund. Because of this, the reservation is subject to that program's requirements (NPS 2008).

Table 2.8.1. Key legal agreements for Blue Hills Reservation.

Party and Subject of Agreement	Type ^a	Expiration Date ^b
Appalachian Mountain Club Camp Ponkapoag	U	2007
WGBH Educational Foundation	A	2009
City of Quincy Ricciuti Drive athletic fields <i>Agreement may be extended for one or more successive 5-year terms.</i>	M	2012
Ski Blue Hills Management, LLC	P	2012
YMCA of Greater Boston, Inc. Ponkapoag Outdoor Center <i>Agreement may be extended for one or more successive 5-year terms.</i>	U	2012
Blue Hills Observatory Science Center, Inc.	S	2013
Michael B. O'Toole, Jr., LLC. Shea Rink	P	2015
Jenna Iantosca dba Jenna's Place Food concession at Houghton's Pond.	P	2017
Massachusetts Department of State Police	H	2017
Mass Audubon Blue Hills Trailside Museum	U	2018
Brookwood Community Farm <i>Agreement may be extended for one or more successive 5-year terms.</i>	S	2018
New Cingular Wireless PCS	H	2019
Mini Fenway Park, Inc. <i>Amended in 2006 for Kids Replica Ball Park, Inc.</i>	L	2024
Town of Canton - Metropolis Rink	L	2030
Town of Milton - Ulin Rink^c	L	2037
Town of Milton Hemenway Pond care, custody, and control.	C	2065
Town of Milton Pine Tree Brook care, custody, and control. <i>42.7 acres off Unquity Rd.</i>	C	2068
Town of Milton Pine Tree Brook care, custody, and control. <i>5.14 acres off Randolph Ave.</i>	C	2068
Hart Family Limited Partnership	M	N/A
Massachusetts Army National Guard	P	N/A
Ridge Arena	P	N/A

a. Agreement types include: C = Care, Custody, and Control agreement; H = Highground special use permit; J = Joint Management Agreement; L = Lease; M = Management agreement; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

b. Year that agreement was signed.

c. A 10-year permit is being developed, but has not been finalized as of this writing.

Key management and guidance documents are identified in Table 2.8.2.

Table 2.8.2. Key management and guidance documents for Blue Hills Reservation.

Author and Document	Year
ENSR International Fowl Meadow and Ponkapoag Bog ACEC: Area of Critical Environmental Concern resource management plan.	2002
Baystate Environmental Consultants, Inc. Watershed management plan: Blue Hills Pond, Milton.	2006
GZA GeoEnvironmental, Inc. Emergency Action Plan, Ponkapoag Pond Dam Canton, MA 03107. November 2006.	2006
Massachusetts Natural Heritage and Endangered Species Program. Biodiversity of the Blue Hills Reservation.	2007
Bowles, I. A. Certificate of the Secretary of Energy and Environmental Affairs on the FEIR. Project name: Proposed Article 97 land swap.	2009
Echandi, A. Great Blue Hill and Little Blue Hill, upland woodland management unit, 138 to Five-corners path (excluding Blue Hills ski slope) and 138 to Green Street (Little Blue) rare and endangered species management plan.	2009 ^a
Echandi, A. Meadow Habitat Management Plan.	2009 ^b
GZA GeoEnvironmental, Inc. Operations and Maintenance Plan: Ponkapoag Pond Dam, Canton, MA 03107.	2009 ^b
Wagner, L. Habitat Management Plan for the Norman Smith Environmental Education Center, Chickatawbut Hill.	2009
Massachusetts Water Resources Authority MWRA Emergency Action Plan for the Blue Hills Reservoir.	2009
AECOM. Granite Rail Quarry wetland restoration and invasive species management plan.	2010
Department of Conservation and Recreation Resource Management Plan: Blue Hills Planning Unit.	2011 ^a
Department of Conservation and Recreation Houghton's Pond ball fields renovation Master Plan. Blue Hills Reservation - Milton, MA. [Note: includes a maintenance plan in Appendix A.]	2011 ^b
GEI Consultants, Inc. Draft Standing Operating Procedures: Blue Hills Reservoir Dam, Quincy, Massachusetts.	2011
DCR and MassWildlife Blue Hills State Reservation: Deer management plan.	2015
DCR and MassWildlife Blue Hills State Reservation: Deer management plan.	2016

A comprehensive fire management plan, which also includes Fowl Meadow, is currently being prepared; it is anticipated to be completed in 2017.

Because Ponkapoag Golf Course is administered as part of DCR's Boston Region, and not as part of the Blue Hills Complex, management and guidance documents specific to that facility are not included in this RMP.

Annual Maintenance

Ongoing management practices typically follow a regular schedule. Common activities, and the desired frequency with which they occur, are identified in Tables 2.8.3 and 2.8.4. The former indicates maintenance activities throughout the reservation, with the exception of internal parkways; the latter indicates maintenance activities for internal parkways.

Table 2.8.3. Annual cycle of management activities at Blue Hills Reservation.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Bathroom - Open for season	A	N/A	N/A	N/A
Bathroom - Winterize	N/A	N/A	A	N/A
Cleaning-Bathroom(s) ^b	E1 AN	E1 AN	E1 AN	N/A AN
Cleaning - Catch basin, drains/culverts	A	A	A	A
Cleaning - Walkways	AN	AN	AN	N/A
Litter removal -Recreation areas ^c	AN E90	E7 E14 E90	AN AN E90	AN AN E90
Litter removal - Trails	AN	AN	AN	AN
Maintenance - Picnic sites, fences, etc.	AN	AN	AN	N/A
Mowing and trimming	AN	E14	AN	N/A
Playground inspection	E7	E7	E7	N/A
Pruning - Trees and shrubs	AN	AN	AN	AN
Sanitizing, beach	N/A	E14	N/A	N/A
Sweeping - Street	E45	E45	E45	N/A
Trash - Empty - Barrels	AN	E7	AN	N/A
Trash - Empty - Bathroom ^b	E1 AN	E1 AN	E1 AN	N/A AN

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

b. Reported for Houghton's Pond Recreation Area (top row) and the Reservation Headquarters (bottom row).

c. Reported for: Houghton's Pond Recreation Area (top row); all other portions of the reservation excluding Indian Line Farm (middle row); and Indian Line Farm (bottom row).

Table 2.8.4. Annual cycle of management activities on Blue Hills Reservation's internal parkways.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Catch basin cleaning	A	A	A	A
Litter removal-Recreation areas	AN	E14	AN	AN
Mowing and trimming	AN	E14	AN	N/A
Pruning – Trees and shrubs	AN	AN	AN	AN
Sweeping, streets	E45	E45	E45	N/A
Trash - Empty - Barrels	AN	E7	AN	N/A

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; N/A = Not applicable.

Natural Resources

Water Resources

Water Resources. The reservation's two largest ponds, Houghton's and Ponkapoag, are designated Great Ponds, and subject to the Massachusetts Public Waterfront Act (Chapter 91) and associated regulations (310 CMR 9.00). Because they are Great Ponds, the land beneath the waters is subject to regulation by the Massachusetts Department of Environmental Protection (DEP 2003).

The DCR is responsible for the operation and maintenance of the Blue Hills Reservoir. The reservoir is designed to be "self operating during a wide range of flows and reservoir levels, including under flood conditions" (GEI 2011). However, normal inspections, maintenance, and reporting are required. Standing Operating Procedures developed specifically for the dam identify minimum inspection and maintenance items, and their frequencies of occurrence (see Table 2.1 in GEI 2011). Public and regulator notification procedures, in the event of an impending dam failure, are specified in an Emergency Action Plan (MWRA 2009).

Water levels at Ponkapoag Pond are regulated to protect rare species habitat and priority natural communities. The desired water conditions are:

- Maximum water surface elevation of 151.78 feet
- Minimum water surface elevation of 149.78 feet

- Maximum drawdown rate of 1.5 inches/week (summer)

These conditions are achieved by:

- Removing all two feet of stop logs at the Controlled Discharge Chamber on June 1
- Replacing all two feet of stop logs at the Controlled Discharge Chamber on September 15

Regulation of water conditions is performed by Ponkapoag Golf Course personnel, in accordance with the dam's operations and maintenance plan (GZA 2009b).

Rare Species

Three documents provided guidance on managing the reservation's rare species. In 2007, at DCR's request, the NHESP issued *Biodiversity of the Blue Hills*; a comprehensive report on the reservation's rare species (NHESP 2007). It divided the reservation into following three management units, and offered specific recommendations for their management.

- Rare Snake Habitat Management Unit
- Upland Woodland Management Unit
- Ponkapoag Pond and Bog Management Unit

This report remains the primary guidance document for rare species management at the Blue Hills.

Subsequent to the NHESP (2007) report, two Habitat Management Plans (HMPs) were developed for portions of the reservation. The first (Echandi 2009a) specifies landscaping, road maintenance, trail maintenance, invasive species monitoring and control, and rare and endangered species monitoring practices to be used in the Little Blue Hill and Great Blue Hill sections of the reservation in order to comply with MESA. The second HMP (Wagner 2009) addresses vegetation management at the Norman Smith Environmental Education Center at Chickatawbut Hill. Both HMPs were approved in 2009 (French 2009a, 2009b); they have not been updated. Trail maintenance practices identified in Echandi (2009a) have been superseded by protocols in NHESP (2015a). See Trails, below, for additional information.

Invasive Species

Invasive plant monitoring and management takes place at the summit of Great Blue Hill and at the

former site of the Granite Rail Quarry. Louise's swallowwort has been periodically managed around the Eliot Pavilion and weather observatory in accordance with an approved HMP (Echandi 2009a). Invasive species at the former quarry are monitored and managed in accordance with terms of the Post Closure Use Plan (AECOM 2014). There is no systematic monitoring or control elsewhere on the reservation.

In the recent past (i.e., ca. 2009), the herbicide Garlon was used to control Louise's swallowwort at the summit of Great Blue Hill, Brookwood Farm, Indian Line Farm, Ulin Rink, and the Norman Smith environmental Education Center (Echandi 2009c).

Vegetation

There are no Continuing Forestry Inventory (CFI) plots. Vegetation monitoring plots established in 1985 (Eck 1985) were not revisited. In 2015, 400 new vegetation monitoring plots were established for the purpose of monitoring deer browse. In addition, vegetation within and outside two 33 x 33 foot deer exclosures are monitored annually to document the extent of browse. These exclosures are located in the Great Blue Hill and Ponkapoag sections.

Specimen hemlocks in the Great Blue Hill, Reservation Headquarters, and Ponkapoag sections are treated once every two years with a basal bark spray combined with injection of a systemic pesticide. These treatments are performed by Forest Health Program personnel who are Licensed Pesticide Applicators.

The reservation's two existing HMPs both address vegetation management. See Rare Species, above, for additional information.

Some partners manage vegetation and erosion at their facilities. Ski Blue Hills, LLC is responsible for mowing woody vegetation and controlling erosion on ski slopes. The AMC and YMCA are responsible for controlling erosion on trails in their camps at Ponkapoag; prior approval by DCR is required. DCR is responsible for removing trees, shrubs, and limbs at the AMC camp. Refer to the original agreements for specific information.

A maintenance plan for the renovated Houghton's Pond ball fields is included as Appendix A of the Houghton's Pond ball fields renovation Master Plan (DCR 2011b). It includes guidance on fertilization,

irrigation, mowing, overseeding, and aeration; and the maintenance of “skinned areas” (i.e., areas with exposed soil, such as the baselines), backstops, and team areas.

Vegetation around the Norman Smith Environmental Education Center is maintained by Mass Audubon in accordance with the terms of an approved HMP. (Wagner 2009).

Managing vegetative growth on the Blue Hills Reservoir Dam is the responsibility of DCR. It is performed by a contractor under the direction of the Office of Dam Safety.

Vegetation and erosion at the site of the former Granite Rail Quarry is to be managed in accordance with Table 2.2, *Plant and Erosion Maintenance Checklist*, in AECOM (2014). Monitoring of this site must continue for 30 years (i.e., 2015–2044; AECOM 2014).

Vegetation management at both the YMCA and AMC camps at Ponkapoag require DCR review and approval. See applicable MOUs for details.

Wildlife

In 2013 the reservation’s deer population was estimated through the use of distance sampling (MassWildlife and DCR 2013). This survey was conducted in response to concerns about observed deer browse on state listed plants, lack of forest regeneration, stakeholder concerns, and a recommendation in the previous RMP (DCR 2011a). The survey calculated an estimated density of 67 deer per square mile; well in excess of MassWildlife’s goal of six to eight deer per square mile of forest (MassWildlife and DCR 2013). Management options were evaluated (DCR and MassWildlife 2015) and presented to the public at a series of meetings in fall 2015. Following these meetings, the DCR Commissioner authorized the first deer hunt in the reservation’s history, in accordance with 302 CMR 12.11(3) ii. That year, a four-day hunt involving 158 permittees resulted in the take of 64 deer. The next year (2016), following additional public meetings, the four-day hunt was modified to include archery and to increase the areas open to hunting. Four hundred and sixteen hunters took a total of 58 deer; seven via archery and 51 via shotgun. These hunts were managed by the DCR, MassWildlife, and members of the State Police and Environmental Police.



A Mass Wildlife biologist interviews a successful hunter during the 2015 deer hunt. (See Appendix K for photo information.)

MassAudubon is solely responsible for providing for the permanent live animal collection at the Trailside Museum.

Under the terms of the Post Cleanup Use Plan, burrowing vertebrates are to be controlled at the former Granite Rail Quarry (AECOM 2014).

MassWildlife stocks brown, rainbow, and tiger trout in Houghton’s Pond for recreational fishing. In 2016, trout were stocked in April and May. MassWildlife stocks eastern brook trout in Pine Tree Brook, off Unquity Road, in April.

Cultural Resources

Alteration of historic buildings requires review and approval by DCR and the submission of a Project Notification Form to MHC for review. This includes the Blue Hills Meteorological Observatory and the historic chestnut cabins at AMC Camp Ponkapoag. In addition, the alteration of other existing cabins or construction of new cabins at Camp Ponkapoag also requires DCR and MHC review and approval.

Excavation, construction, tilling, or other improvements or construction at Brookwood Farm is prohibited unless approved in writing by the DCR and MHC. Under Massachusetts Law any project that proposes digging or altering the existing landscape must be reviewed and approved by DCR’s archaeologist.

Recreation Resources

DCR’s Parks and Recreation Rules prohibit hunting and trapping throughout the reservation, unless authorized by the Commissioner or specifically

authorized by law (302 CMR 12.11(3) ii). In 2015, the Commissioner authorized a special four-day deer hunt. Other hunting, and all trapping, remains prohibited.

The use of watercraft in the reservation is specifically regulated by DCR's Parks and Recreation Rules (302 CMR 12:00). The launching or use of watercraft is prohibited at Houghton's Pond and the Blue Hills Reservoir. Only cartop boats may be launched or used at Hillside or St. Moritz ponds. Boat use at Ponkapoag Pond is restricted to motorized watercraft with electric motors, not to exceed 10 mph, and car top boats.

Under the terms of their MOU, Mass Audubon is responsible for operating the public toilet facility within the Trailside Museum, as well as the nearby comfort station.

Several site-specific policies are associated with the management of the Houghton's Pond Recreation Area. Three picnic sites (Sites 3, 4, and 5) may be reserved for use by groups of 25 or more; the Blue Hills District Office schedules their use. No reservations are allowed for the Memorial Day weekend, Labor Day weekend, or the week of Independence Day. During these periods use is first-come, first-served. The remaining picnic sites (Sites 1 and 2) are always available for use on a first-come, first-served basis. Use of the athletic fields requires submission of an Athletic Field Scheduling Request Form and associated fee. See <http://www.mass.gov/eea/docs/dcr/recreate/scheduling-request.pdf> for additional information. At a minimum, the food concession is to be open daily from 10:00 a.m. to 5:00 p.m., between Memorial Day and Labor Day. Additional requirements are identified in the current Special Use Permit.

Operation of the William F. Roger Ski Area is detailed in a Permit Agreement by and between the DCR and Ski Blue Hills, LLC. This agreement covers such things as hours of operation, length of ski season, provision of a ski patrol organization, equipment rental, learn to ski and snowboard programs geared toward lower-income residents of the Commonwealth, and concessions. Readers are directed to that agreement for specific information.

Operations, maintenance, and management of Shea and Ulin skating rinks are to be performed in accordance with the terms of their permits. Specific

requirements are provided in the Request for Proposals (RFP) that included these two rinks (RFP# DCR2010318). Included in these requirements are hours of operation, prioritization for scheduling ice time, and the provision of general public skating. Readers are directed to the RFP for specific information.

Use of the YMCA and AMC camps in the Ponkapoag section is guided by their respective Memorandum of Understanding. Both camps are required to provide American Red Cross certified life guards at their waterfronts and to comply with the DCR waterfront safety manual. The AMC is also responsible for performing water sampling during the beach season. Other specific requirements are identified in the Memoranda of Understanding, including the capping of the maximum number of campers and the provision that not less than 25% of summer outdoor youth camp participants at the YMCA are from low-income families. Readers seeking specific information are directed to the original agreements.

Infrastructure

Buildings and Structures

In general, the DCR is responsible for maintaining most buildings and structures. Those not maintained by the DCR are privately owned or DCR-owned but operated by a partner or tenant under a lease, permit, or agreement. Privately owned buildings and structures are identified in Tables 2.3.2 and 2.5.1; their maintenance and repair are the responsibility of their owners. The responsibilities of partners and tenants in DCR-owned buildings differ among agreements. The following paragraphs provide brief, generalized overviews of partners' and tenants' management responsibilities for buildings and structures. Readers are advised to consult the most recent versions of legal agreements for full details.

Mass Audubon performs minor preventative maintenance and repairs to its facilities. It is solely responsible for maintaining the observation tower at its environmental education center. The DCR provides utilities for the Trailside Museum and the environmental education center. Due to its proximity to Trailside Museum, Mass Audubon is responsible for opening, closing, and operating the historic comfort station immediately north of the museum.

The DCR furnishes janitorial and maintenance supplies.

Ski Blue Hills LLC provides capital improvements to, and replacements of, infrastructure at the ski area. If needed, replacement of the water heater, boiler, and heating system are the responsibility of the DCR. Ski Blue Hills is responsible for utility costs, with the exception of heating fuel and electricity at two buildings.

Blue Hill Observatory and Science Center, Inc. performs minor preventative maintenance and repairs to the Blue Hills Meteorological Observatory. Major plumbing and heating repairs are the responsibility of the DCR. Utility costs are also the responsibility of the DCR. See Cultural Resources, above, for information on the required review associated with building repair.

Under the terms of its Special Use Permit, Brookwood Community Farm, Inc. has the use of one garage (i.e., tractor shed) bay. They are responsible for all costs of all utilities. The farm currently has use of all of the garage's bays and obtains some of its electricity from DCR buildings. See Cultural Resources, above, for information on the required review associated with tilling the farm's fields.

The Operators of Ulin and Shea rinks are responsible for all interior and exterior repairs and maintenance of the buildings. This includes all capital infrastructure repairs and replacements with the exception of the roof, slab, and compressor, condenser, or cooling tower. The operators are responsible for the costs of all utilities. Rink operators are also responsible for litter removal, grass cutting, snow removal, and other activities associated with maintaining the facilities' grounds.

The YMCA and AMC camps at Ponkapoag Pond differ from the previously discussed facilities in that the buildings are not owned by the DCR. The maintenance, repair, and operation of these buildings are the responsibility of the building's owners. Utility costs and any required regulatory permits associated with utilities (e.g., drinking water well) are also their responsibility. Any planned work on the YMCA camp's buildings must be submitted to DCR for review and approval. Construction of new buildings at the AMC camp, or modification of the camp's historic chestnut cabins requires DCR and

MHC approval. See Cultural Resources, above, for information on the required review associated with building repair. Because both camps are located near a wetland resource area and within the Fowl Meadow and Ponkapoag Bog ACEC, construction or major repair may also require additional environmental regulatory review.

The DCR is responsible for the management of all dams in the Blue Hills, with the exception of Pine Tree Brook Flood Control Dam, which is the property and responsibility of the Town of Milton. Operations and Emergency Access Plans have been prepared for Blue Hills Reservoir Dam and Ponkapoag Dam; they guide their management. (See Table 2.8.2., for citations for these documents.)

Roads

Snow plowing is the joint responsibility of DCR, MassDOT, and the reservation's tenants and partners.

The DCR prioritizes its snow response on the basis of public safety needs. Primary roadways, sidewalks, and crosswalks are considered Priority 1 and cleared during the snowstorm. Secondary roadways, sidewalks, and crosswalks are considered Priority 2, and are cleared within 12 hours of the storm's end. Interior park roads and parking lots are considered Priority 3, and are cleared more than 12 hours after a storm. A full description of DCR's storm response may be found at <http://www.mass.gov/eea/agencies/dcr/services-and-assistance/winter-storm-mgmt/>.

Of the Blue Hills roads, sidewalks, and crossings, only one is Priority 1; the sidewalk along Unquity Road between Ulin Rink and Canton Ave. There are no Priority 2 features. All other roads, parking areas, sidewalks, and crosswalks are Priority 3. Some of the park's roads, such as Blue Hill River Road within the Houghton's Pond Recreation Area are not plowed due to the seasonal nature of the recreation. Other roads, such as Acton Path/Ponkapoag Trail are not plowed so that they may be used for winter recreation (e.g. cross-country skiing, snowshoeing).

MassDOT is responsible for snow plowing on the following internal park roads:

- Green Street, Canton
- Blue Hill River Road, Canton
- Hillside Street, Milton

- Blue Hill River Road, Milton
- Unquity Road, Milton
- Chickatawbut Road, Milton and Quincy
- Wampatuck Road, Quincy

The responsibility of the reservation's partners and tenants to remove snow from roads and parking areas varies in accordance with their permit or agreement. Mass Audubon is responsible for snow removal from the driveway and walkways at the Trailside Museum, and the road and walkways at its environmental education center. Ski Blue Hills, LLC is responsible for clearing snow from all roads and paths in the ski area. The DCR is responsible for maintaining Summit Road. The YMCA of Greater Boston is responsible for the year-round maintenance of the road to its camp, including snow and ice removal. The AMC is responsible for minor maintenance of the access road to its camp, and the DCR is responsible for its long-term maintenance. The AMC is responsible for limiting use of this road to patrons and/or employees.

Parking Areas

In general, the DCR is responsible for the year-round management of parking areas. Exceptions are associated with facilities used by DCR's partners. The ski area operators are responsible for removing snow from the north and south Trailside Museum parking lots. DCR will provide heavy equipment to assist, if warranted. Under the terms of their agreement, the ski area may use parking lots at the Route 138 Park and Ride and at Houghton's Pond for additional skier parking. During inclement weather, Ski Blue Hills LLC has access to DCR's Operations Yard in order to obtain sand and salt to be used in and around the ski area's parking lots and walkways. The DCR also provides 55-gallon drums of sand or salt to the ski area for placement near the entrance steps. Mass Audubon is responsible for plowing parking areas at their environmental education center. The YMCA is responsible for maintaining its parking areas on a year-round basis.

Trails

In 2015, the NHESP assessed the potential impacts of trail maintenance activities on rare species for 35,286 trail segments in 255 DCR properties, including the Blue Hills Reservation (NHESP 2015a). Their report identifies, by individual trail

segment, specific maintenance practices that require review under MESA. Consulting this report and associated data viewer are the standard first steps for trail maintenance activities.

Trail maintenance and repair activities are performed by Friends members and non-member volunteers working under the supervision of the Friends. DCR rangers collect reports of trees blocking trails and remove these trees on an approximately monthly basis. Blue Hills Trail Watch is currently inactive; they formerly worked with the DCR to educate trail users, perform trail repairs, and report trail problems.

Kiosks and Signs

DCR Rangers are responsible for updating the content of kiosks and bulletin boards.

Interpretation

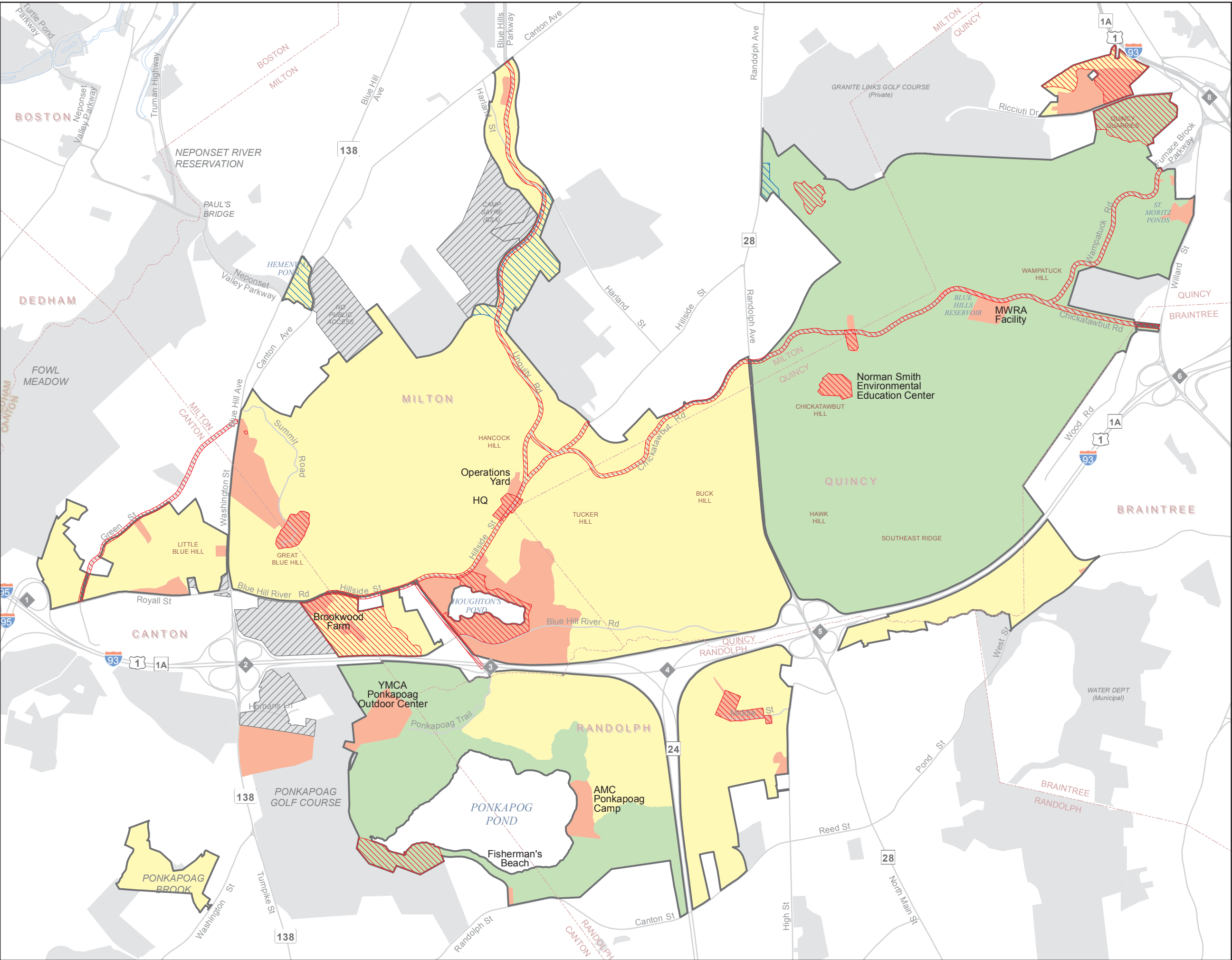
Mass Audubon operates the Trailside Museum and Norman Smith Environmental Education Center at Chickatawbut Hill for the purpose of reservation-related interpretation and displays for the general public. They are solely responsible for staffing, developing and presenting interpretive materials and displays, and care of the permanent live animal collection. Interpretive programming offered by the Blue Hill Observatory and Science Center are developed and offered by the center's staff. Interpretive programming offered by the Friends is the responsibility of that organization.

2.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of the Blue Hills Reservation. Applied Land Stewardship Zoning recommendations provide general guidance for managing the Blue Hills. Future activities and projects should be checked against the zoning map (Figure 2.9.1) for consistency. Only high priority management recommendations are included below, they should be addressed as soon as resources become available.

Place holder for Figure 2.9.1



Blue Hills Reservation

Figure 2.9.1

Recommended
Land Stewardship Zoning

- KEY**
- Blue Hills Reservation Outline
 - Other Legal Interest - DCR
 - Other Legal Interest - not DCR
 - Other Protected Open Space
 - Land Stewardship Zoning
 - Zone 1
 - Zone 2
 - Zone 3
 - Historic Resources Significance Overlay



0 1,000 2,000 3,000
Feet

Geographic information provided by MassGIS and DCR GIS. 2016



Place holder for Figure 2.9.1 (back)

Land Stewardship Zoning and management recommendations contained in the recent RMP for the Blue Hills Planning Unit (DCR 2011a) have been incorporated into this plan. The previous plan's Land Stewardship Zoning recommendations were reviewed and serve as the basis for those presented below. All of the previous plan's management recommendations have been included in this document as Appendix I; applicable recommendations not yet implemented are still considered valid. A subset of these recommendations, those meeting current criteria for priority recommendations, is included below. Also included below are new priority recommendations identified during the current planning process.

Applied Land Stewardship Zoning (Figure 2.9.1)

The following Land Stewardship Zoning is recommended. It is based on recommended zoning in the previous RMP (DCR 2011a; Figure 4.2.1), but has been modified to reflect the addition of the Ponkapoag Brook section of the reservation and to exclude Ponkapoag Golf Course and Town Brook Flood Control Site. (See Section 1.3 for more information on Town Brook Flood Control Site.)

Zone 1

The reservation's most environmentally sensitive areas occur east of Route 28 or are associated with Ponkapoag Pond and Bog. The following sections of Blue Hills Reservation have been designated Zone 1 in order to protect sensitive state-listed species and their habitats in these areas.

- Chickatawbut Hill section; with the exception of currently developed areas as identified in the Zone 3 description, below.
- Quincy Quarries section; south of Ricciuti Drive.
- St. Moritz section; with the exception of currently developed areas as identified in the Zone 3 description, below.
- Ponkapoag section; Ponkapoag Bog, the undeveloped shore of Ponkapoag Pond, and associated uplands and wetlands that support state-listed species.

Zone 2

The following sections of Blue Hills Reservation have been designated Zone 2.

- Little Blue Hill section; with the exception of currently developed areas or an area potentially suitable for future development, as identified in the Zone 3 description, below.
- Hemenway Pond section.
- Great Blue Hill section; most areas, with the exception of currently developed areas as identified in the Zone 3 description, below.
- Brookwood Farm section; most areas, with the exception of currently developed areas as identified in the Zone 3 description, below.
- Houghton's Pond section; Marigold Marsh.
- Unquity Road section; most areas, with the exception of a currently developed area identified in the Zone 3 description, below.
- Buck Hill section.
- Quincy Quarries section; forested hillside north of developed areas and south of Mullin Avenue.
- St. Moritz section; most areas, with the exception of currently developed areas as identified in the Zone 3 description, below.
- Ponkapoag Brook section.
- Ponkapoag section; the following areas:
 - Indian Line Farm, in the absence of any administrative or recreation development.
 - Area north of Ponkapoag Trail and east of the AMC Ponkapoag Camp.
- Ponkapoag East section; most areas, with the exception of currently developed areas as identified in the Zone 3 description, below.
- West Street section; most areas, with the exception of an area identified in the Zone 3 description, below.

Zone 3

The following portions of the Blue Hills are currently developed or are appropriate for potential future development; they have been designated Zone 3.

- Little Blue Hill section; the following areas:
 - Route 138 Park and Ride lot.
 - Green Street dressage field.
 - An area between Royall Street and a line 200 feet south of, and parallel to, the Skyline Trail. To allow for the *potential* development of administrative, operations, or athletic facilities. In the absence of development, this area is to be managed as a Zone 2. There are currently no plans to develop this area. Any future proposals will require a full environmental review and public process.
- Great Blue Hill section; the following areas:
 - Blue Hills Trailside Museum.
 - William F. Rogers Ski Area.
 - Blue Hills Meteorological Observatory and Eliot Memorial landscapes.
- Brookwood Farm section; the following areas:
 - Farm buildings and associated areas developed at the time of the 2011 RMP.
 - Henry Saltonstall Howe House and grounds.
- Houghton's Pond section; all areas except Marigold Marsh.
- Reservation Headquarters section.
- Operations Yard section.
- Unquity Road section; the following area:
 - Max Ulin Memorial Skating Rink and its grounds.
- Chickatawbut Hill section; the following areas:
 - Norman Smith Environmental Education Center at Chickatawbut Hill.
 - Chickatawbut Overlook landscape.
 - MWRA covered water storage facility and adjacent dam, dam embankment, spillway, and parking lot.
- Quincy Quarries section; the following areas:
 - Ricciuti Drive athletic fields.
 - Historic quarry areas north of Ricciuti Drive.
 - Parking lots.
- St. Moritz section; the following areas:
 - Mayor William T. Shea Memorial Rink, its grounds, and the associated basketball court.
 - Sergeant Robert Allen Curry Ball Field and adjacent maintained areas.
 - Daniel Michael Shea Memorial Park.
 - St. Moritz Horseshoe Pitching Club.
- Ponkapoag section; the following areas:
 - Indian Line Farm. In the absence of development, this area is to be managed as a Zone 2. There are currently no plans to develop this area. Any future proposals will require a full environmental review and public process.
 - YMCA Camp Ponkapoag.
 - Fisherman's Beach; parking area only.
 - AMC Ponkapoag Camp.
- Ponkapoag East section; the following areas:
 - Nike Launcher Site.
 - North Randolph Little League ball fields and associated development on High Street, Randolph.
- West Street section; existing parking lot, lawn, and pavement adjacent to the intersection of West Street and old Route 128.
- All other areas legally developed for recreation, administration, or operations purposes as of January 1, 2016; including all exceptions noted above in the descriptions for Zones 1 and 2.

Significant Feature Overlay

The following Significant Feature Overlay was developed to protect resources.

- **Historic Resources.** All DCR properties listed in or eligible for listing in the State and National Registers of Historic Places are included in this overlay. Four historic cabins at the AMC Ponkapoag Camp are listed in the National Register, but are not included in this overlay because they are not owned by the DCR. This overlay is the same as presented in the 2011 RMP (DCR 2011).

Management Recommendations

The previous RMP for the Blue Hills identified 207 recommendations (DCR 2011). Of these, 27 have been fully implemented, three were partially implemented, five are in progress, and 17 are no longer applicable. The remaining 155 recommendations have not been implemented. (See Appendix I for a list of these recommendations.) Of those recommendations partially implemented or not yet implemented, 28 are considered priority under current criteria and are presented in Table 5.9.1. An additional twelve priority recommendations were newly identified during the current planning process.

For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.

Table 2.9.1. Priority recommendations for Blue Hills Reservation.

Recommendation	Implementation^a
Reduce trail user conflicts by: developing and distributing trail etiquette literature; posting trail etiquette “Yield” signs at kiosks, bulletin boards, and key locations along trails; revising future trail maps to include information on trail etiquette; and working with the DCR Mounted Unit and partners to offer training in trail etiquette.	R, V
Increase ranger presence on trails to promote enhanced compliance with trail regulations.	B
Work with MassDOT, and other transportation planning entities, to reduce through and commuter traffic in the reservation.	E, P, R, V
Using new traffic count data, conduct an assessment of pedestrian safety.	C, R
Work with the Massachusetts State Police to develop a speed enforcement plan.	E, P, R, V
Install “Share the Road” and bicycle vehicular traffic warning signs on internal park roads and parkways to increase driver awareness of the presence of cyclists.	E, R, V
Advocate that MassDOT install a left-hand turn lane on Route 138 south for vehicles to enter the Trailside Museum south parking lot. Request that MassDOT perform a safety study and warrant analysis for a left-hand turn lane from Route 138 south into the Trailside Museum south parking lot.	R, V
Have a structural engineer inspect the foundation of the ski area’s main lodge and make recommendations for its maintenance, repair, or replacement. [Note: the option to replace the ski lodge has been added to this recommendation.]	E
Work with the ski area operator to ensure that all portions of the ski slopes have an “erosion-protective cover of vegetation.”	P, R
Modify signs and striping at the Trailside Museum north and south parking lots to ensure compliance with accessible parking requirements.	C, E
Replace the Great Blue Hill pump house roof’s sheathing and shingles.	S
Make a portion of Picnic Site 4 accessible by installing accessible grills and picnic tables, and creating a hardened path to nearby accessible parking.	C
Modify signs and striping at the main Houghton’s Pond and Site 5 parking lots to ensure compliance with accessible parking requirements.	C, E
Establish a safe pedestrian connection between Houghton’s Pond and Brookwood Farm by improving the intersection of Hillside Street and Blue Hill River Road in Milton.	C, E, V
Investigate the potential septic system connection at the Police Station.	C, E
Modify signs and striping at the Ulin Rink parking lot to ensure compliance with accessible parking requirements.	C, E
Complete the mothballing of the Randolph Avenue Stable by ensuring that all openings are properly sealed and there is adequate ventilation.	P, S
Evaluate locations of trails relative to the dens of state-listed snakes and reroute or close trail segments, as necessary, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a). [Note: This manual was updated in October 2014; evaluation should be done in accordance with the revised version.]	P, R, V
Improve the crosswalk at the Chickatawbut Overlook.	C, E, P, V
Reinstitute seasonal nighttime closings of Chickatawbut Road, east of Route 28, and Wampatuck Road; as recommended by the NHESP (2007).	R
Develop and implement vista clearing protocols for the Chickatawbut Overlook viewshed. This recommendation may be implemented in advance of the VMP.	P, R
Develop and implement vegetation maintenance protocols for the Chickatawbut Observation Tower, Chickatawbut Pavilion, and picnic area. This recommendation may be implemented in advance of the VMP.	P, R

Recommendation	Implementation ^a
Exclude all non-emergency vehicles, except in exigent situations, and non-utility company motor vehicles from trails in rare snake habitat east of Route 28. [Note: In the 2011 RMP, this recommendation was made three times, once for each of the following sections of the reservation: Buck Hill, Chickatawbut, and St. Moritz.]	R
Plan landscaping, maintenance, and construction to avoid impacts to rare snakes; as recommended by the NHESP (2007).	P, R
Stabilize and mothball the Granite Rail Quarry compressor house.	P, S
Modify signs and striping at the Shea Rink parking lot to ensure compliance with accessible parking requirements.	C, E
Install a memorial marker at the Sergeant Robert Allen Curry Ball Field.	R
Work with the AMC Ponkapoag Camp to bring the camp into compliance with State Sanitary Code.	R
Work with the Canton and Randolph Boards of Health, and the Massachusetts Department of Public Health to ensure that Public Health Fish Consumption Advisory signs are posted at Ponkapoag Dam, Fisherman's Beach, AMC Ponkapoag Camp, and the entrance to the Ponkapoag Boardwalk.	R
Promote the regeneration of native forests by decreasing deer populations to the recommended density of 6 to 18 deer/mi ² of forest, through regulated hunting, in order to reduce deer browse.	B, F, P, R, V
Implement the eight life safety and nine near-term asset protection recommendations for the Blue Hill Meteorological Observatory as identified in DCR and Turowski2 Architecture, Inc. (2015).	C, E, P
Implement the eight life safety recommendations for the Eliot Bridge and Pavilion as identified in DCR and Turowski2 Architecture, Inc. (2015). [Note: This supersedes the recommendation in the 2011 RMP to "Replace the Great Blue Hill Observation Tower and Eliot Pavilion's roof and repair damaged masonry."]	C, E, P
Roof and side the Gate Keeper's Cottage at Brookwood Farm so that water does not penetrate the building envelope.	R, S, V
Implement structural repairs to the east wall of the Brian T. Broderick Stables.	C, E, P
Remove flammable (e.g., gasoline) and combustible (e.g., motor oil, two-stroke oil) materials from storage locations in historic buildings; identify alternate storage location(s) that meet all relevant safety codes. Remove power equipment from all historic buildings not intended for this use.	C, P, R
Perform a carrying capacity study for the Houghton's Pond Recreation Area.	C, P, R
Work with Brookwood Community Farm to ensure consistency with the terms of their Special Use Permit.	R
Work with MassDOT to establish a signalized crosswalk across Route 138 for use by trail users and for park visitors seeking to safely access the Route 138 Park and Ride lot from the ski area and Trailside Museum.	R
Work with MassDOT to identify which trail crossing locations along Route 28 are appropriate for the installation of mid-block crosswalks. Install crosswalk lines, signs, and pedestrian actuated signal devices as appropriate.	E, P, R
Install Color Core signs at trail intersections along both sides of Route 28 that direct trail users to locations of crosswalks associated with trail crossings or the signalized crosswalk at Route 28 and Chickatawbut Road, and recommend that these crosswalks be used during periods of heavy traffic volume.	B, R, V

- a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Parks Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.

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Boardwalks at Cutler Park provide visitors access to the marshes of the Charles River. (See Appendix K for photo information.)

SECTION 3. CUTLER PARK RESERVATION

3.1. INTRODUCTION

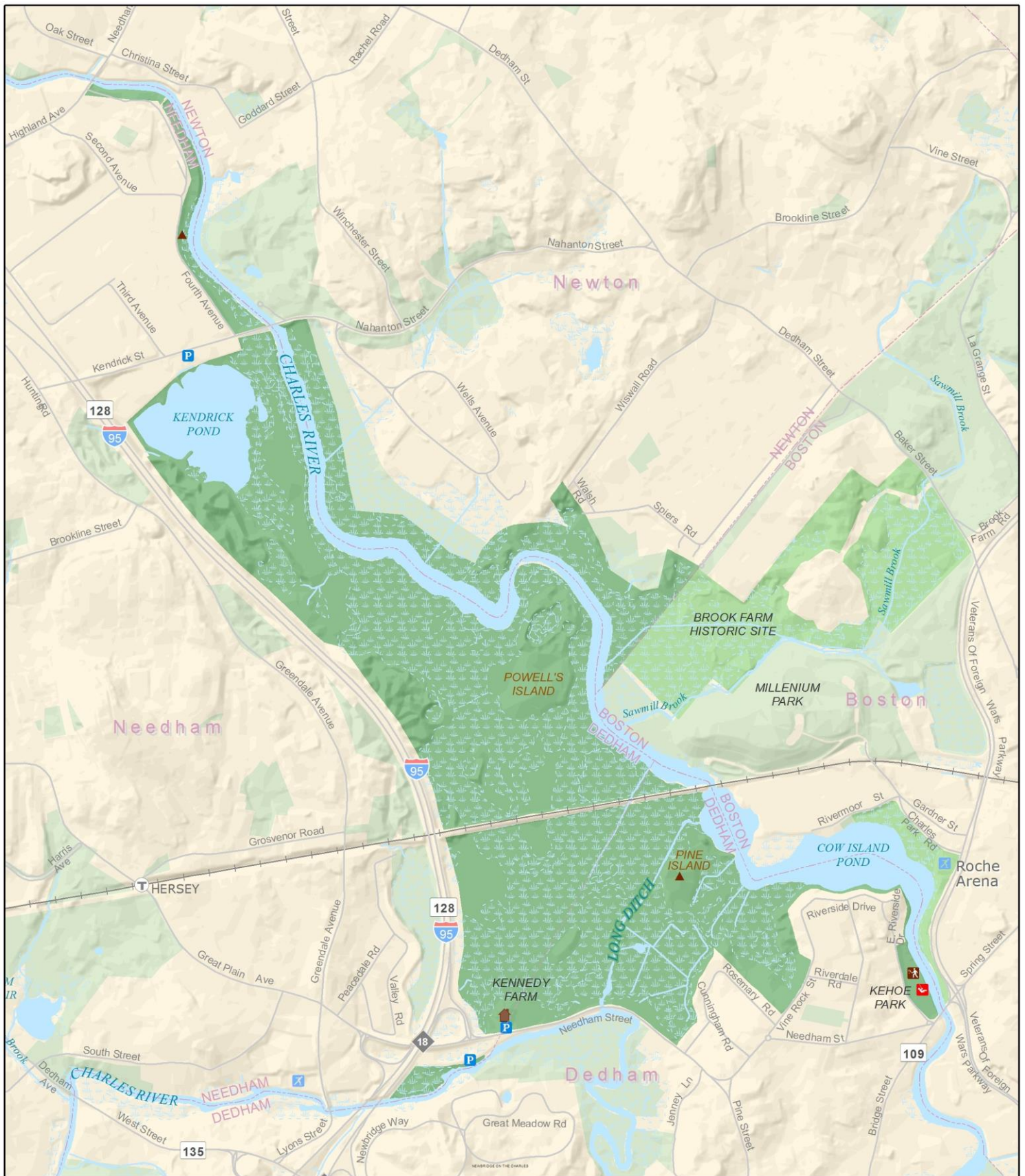
Cutler Park Reservation (Cutler Park) is located along the Charles River in the towns of Needham and Dedham (Figure 3.1.1), approximately five miles northwest of the Blue Hills Reservation. It is largely situated within the river's floodplain, and subject to periodic inundation. Open water and wetlands dominate the landscape; forested uplands are less common.

Cutler Park and associated properties were acquired as part of the Metropolitan District Commission's (MDC's) efforts to expand the Charles River Reservation in order to offset the loss of parklands at Blue Hills Reservation caused by the construction of Route 128 (MDC 1958). The low level of shoreline development combined with an extensive freshwater marsh (i.e., the Broad Meadow) helped focus protection efforts on Needham. Much of the adjacent uplands once belonged to the cities of Newton and Brookline, which had operated water works on the site. This land use minimized the amount of other development on these properties; making them appropriate for inclusion in the MDC's park system. Land acquisition, which involved a series of eminent domain takings, primarily occurred in the late 1950s;

associated legal actions continued through the mid-1960s.

Initial considerations for the park included the development of picnic areas, athletic fields, a swimming beach, boating facilities, viewing platforms, a day camp, administrative building, and a 27-hole golf course (Edwards, Kelcey and Beck 1956). However, emphasis soon shifted to maintaining "much of this area in a comparatively natural state and to encourage the wild life which presently exists there" (MDC 1958).

In 1962, the portion of the Charles River Reservation "bounded by Great Plain Avenue, state highway Route 128, Kendrick Street and the Charles River" was designated Cutler Park in honor of Leslie B. Cutler. Mrs. Cutler, a Needham resident, served in local government, was a Representative to the Massachusetts General Court from 1938–1948, and was the first woman elected to the Massachusetts Senate (Crumbaker 1992). In 1974 the MDC formally voted to rename the property Cutler Park Reservation.



<ul style="list-style-type: none"> Cutler Park Reservation Blue Hills Complex Land Other DCR Land Other Protected Open Space DCR Legal Interest Athletic Court Ice Rink 	<ul style="list-style-type: none"> Playground Public Parking Pumphouse 	<h3 style="text-align: center;">Cutler Park Reservation</h3> <p style="text-align: center;">Figure 3.1.1</p> <p style="text-align: center;">1,000 Feet</p> <p style="text-align: center;">Geographic information provided by MassGIS and DCR GIS, 2016</p>	<div style="text-align: center;"> </div> <div style="text-align: center;"> </div> <div style="text-align: center;"> </div>
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Today, Cutler Park is best known for trail-based recreation including hiking, mountain biking, and nature study. Its trails system is part of a multi-town, multi-property trail network; the Blue Heron Trail.

The park's physical, political, and regulatory attributes are summarized in Table 3.1.1.

Table 3.1.1. Physical, political, and regulatory settings of Cutler Park Reservation and associated properties.

Setting	Name or Metric
Location:	Dedham, Needham, and Newton
Area (acres)^a:	771.98
Perimeter (miles)^a:	16.20
Landscape Designation^b:	Parkland
Legislative Districts:	
House	12 th Middlesex 11 th Norfolk 13 th Norfolk
Senate	First Middlesex & Norfolk Norfolk, Bristol & Middlesex Norfolk and Suffolk
Regulatory Designation:	Priority Habitat

a. Calculated using a Geographic Information System (GIS).

b. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld-factsheet-final.pdf>.

Associated Properties. Four associated properties are included in this section, they are:

- **Charles River Reservation - Highland Avenue.** This 19.46 acre parcel is located in Needham along the west bank of the Charles River, between Highland and Kendrick avenues. For much of its length, this parcel is bordered by 4th Avenue and serves as a buffer between industrial development and the Charles River. This property was part of the original Newton Water Works.
- **Charles River Reservation - Great Plain Avenue.** This 4.97 acre parcel is located in Needham between Great Plain Avenue and the Charles River; immediately south of Kennedy Farm. It is in the process of being transferred from MassDOT to the DCR. For this reason, this parcel is included in this section.
- **Charles River Reservation - Newton.** This 88.99 acre parcel is located along the east bank of the Charles River, between Nahanton Street, Newton and DCR's Brook Farm Historic Site. It

was part of the initial park acquisitions in 1958. Although often considered part of Cutler Park, it was not included in the 1962 designation.

- **The Honorable Marie-Louise Kehoe Park. (Kehoe Park)** This 6.14 acre park, formerly called Riverdale Park, is located along the west bank of the Charles River, to the east of Riverside Drive, Dedham. It lies just upstream of Cutler Park. Riverdale Park was acquired by the MDC in 1931. In 2009 it was renamed in honor of Marie-Louise Kehoe who served on the Dedham Board of Selectmen for 40 years and was a Representative to the Massachusetts General Court from 1983–1995. (Chapter 499 of the Acts of 2008)

3.2. NATURAL RESOURCES

Physical Features

Within Cutler Park, the Charles River lies in a relatively flat flood plain, through which the river flows from the southeast to northwest. The river and associated marsh have elevations of 86 feet above sea level. Elevations increase to both the west and east, with the highest elevations (approximately 150–160 feet) associated with a series of hills bordering Route 128. Cutler's two islands, Powell's and Pine, reach elevations of 98 and 108 feet, respectively.

Elevations in the Charles River Reservation are largely at, or near, the elevation of the river (i.e., 86 feet). In the Highland Avenue parcel, elevations reach 102 feet as you move westward away from the river. The Newton portion of the reservation is largely marsh and forested wetlands; a few areas of high ground reach approximately 108 feet. Along the portion of the reservation south of Great Plain Avenue, elevations range from 86 feet at the river to approximately 92 feet along the adjacent roadway.

Kehoe Park ranges in elevation from approximately 86 to 98 feet.

Water Resources

The most notable aspect of Cutler Park is its water resources; the Charles River, Kendrick Pond, and associated wetlands. These and other water resources are summarized in Table 3.2.1.

Table 3.2.1. Water resources of Cutler Park Reservation and associated properties.

Water Resource	Name or Metric
Watershed:	Charles
Aquifer:	
Medium Yield (acres)	248.98
High Yield (acres)	409.44
Rivers and Streams (miles)	5.15
Vernal Pools	
Certified (#)	4
Potential (#)	8
Wetlands (acres)	463.96
Lakes and Ponds (acres)^a	45.83

a. This category also includes open areas of major rivers, as identified in MassDEP Wetlands (1:12,000; MassGIS 2009).



View across Kendrick Pond toward Nonantum Hill in Newton. (See Appendix K for photo information.)

The segment of the Charles River between Chestnut Street, Needham and the Watertown Dam has impaired water quality (DEP 2013). Cutler Park and associated portions of the Charles River Reservation are located in this segment. Sources of impairment include:

- non-native aquatic plants
- alterations to the flow regime
- DDT
- *E. coli*
- Eurasian water milfoil
- fisheries bioassessments
- nutrient/eutrophication
- biological indicators
- PCB in fish tissues
- total phosphorous

It is unknown which of these impairments occur within the park.

Due to the presence of PCBs and pesticides, a public health fish consumption advisory has been issued for the portion of the Charles River between the South Natick Dam and the Museum of Science Dam (HHS 2015). This includes Cutler Park, associated portions of the Charles River Reservation, and Kehoe Park. There are no signs in these parks cautioning against the consumption of fish caught in the Charles.

Portions of the middle and upper Charles River watershed have been protected for flood control purposes. The U. S. Army Corps of Engineers (ACOE), through acquisition in fee or easements, has protected 17 natural valley storage areas totaling 8,101 acres. Wetlands in these areas function as a natural flood control system, storing storm water and delaying its release downriver (Doyle 1988). Cutler Park is one of these areas. Portions of Franklin State Forest (Section 8) are also included in the Charles River Natural Valley Storage Area.

Given its ability to retain storm water, it is not surprising that much of Cutler Park is subject to flooding. (Table 3.2.2) Due to its distance from the coast, and the presence of dams down river, it is not subject to hurricane related storm surge.

Table 3.2.2. Potential impacts of flooding to Cutler Park Reservation and associated properties.

Type of Impact	Acres	%
Flooding:		
100-year Storm	635.72	82.35
500-year Storm ^a	682.35	88.39

a. Cumulative value; includes 100-year storm impacts.

b. Cumulative value; includes impacts of all lower category storms.

Most of Cutler Park is within the area predicted to be impacted by a 100-year flood; the entire boardwalk system is within this zone. The Kendrick Street parking lot is not predicted to be affected by either a 100 or 500-year flood. The Needham Street parking lot is predicted to be impacted by a 500-year flood.

The only infrastructure in the Charles River Reservation predicted to be impacted by flooding is “Old Great Plain Avenue”, which will be partially inundated by a 100-year flood and entirely inundated by a 500-year flood.

Approximately half of Kehoe Park's tennis and basketball courts (i.e., those closest to the river), and the entire playground are predicted to be impacted by a 100-year flood. All of its recreation facilities are predicted to be impacted by a 500-year flood.



Predicted flooding at Kehoe Park; the 100-year flood zone is represented in blue and the 500-year zone in orange. The park's athletic courts are visible at the center of the image at the boundary of the two zones. (See Appendix K for photo information.)

Rare Species

State-listed Species

Four state-listed species are known from Cutler Park and its associated properties. (Table 3.2.3) They are associated with rivers, river floodplains, and freshwater wetlands.

Table 3.2.3. State-listed species of Cutler Park Reservation and associated properties, as identified by the NHESP.^{a,b}

Species ^{a, b}	Type ^c	MESA ^d
Blue spotted salamander	A	SC
Britton's violet	P	T
Long's bulrush	P	T
Umber shadowdragon	I	SC

a. Presented alphabetically, by common name.

b. Fact sheets are available at:
<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.

c. Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.

d. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

Priority Habitat

Much of Cutler Park (70.51%) has been designated Priority Habitat. Exceptions include the Kendrick Pond area, the portion of the Charles River Reservation between Highland Avenue and Kendrick Street, and Kehoe Park.

Vegetation

A “preliminary account” of Cutler Park's plants identified 343 species; primarily from the area south of the MBTA commuter rail tracks (Salicicola 2015b). Ninety-six are characterized as non-native.

Upland forests are dominated by various mixtures of oaks (e.g., white, scarlet, black, northern red). A variety of non-native plants, including ornamental shrubs and flowers, are associated with previous forestry efforts (i.e., red and Scots pine plantations) and formerly developed areas (e.g., Kennedy Farm).

Floodplain forests are dominated by red maple, a combination of red and silver maple, and in a few locations, swamp white oak. Most wetlands are dominated by herbaceous vegetation with narrow-leaved cattail one of the most common, and dominant, species.

Invasive Species

The plant checklist for Cutler Park (Salicicola 2015) includes 23 species considered invasive, likely invasive, or potentially invasive by MIPAG (2005). (Table 3.2.4) Ten additional species, considered invasive by Salicicola (2015b), but not listed by MIPAG, are also on the checklist.

Table 3.2.4. Known invasive plants of Cutler Park Reservation and associated properties.

Species ^a	Status ^b
Amur corktree	I
Amur honeysuckle	P
Black swallowwort	I
Border privet	I
Common barberry	L
Common buckthorn	I
Common reed	I
Cypress spurge	L
Garlic mustard	I
Glossy buckthorn	I
Japanese barberry	I
Japanese knotweed	I
Morrow's honeysuckle	I
Multiflora rose	I
Norway maple	I
Oriental bittersweet	I
Purple loosestrife	I
Reed canarygrass	I
Rusty willow	I
Spotted knapweed	L
Tree of Heaven	I
Winged euonymus	I
Yellow iris	I

a. Presented alphabetically, by common name.

b. Plants are classified as Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).

One additional species of invasive plant, not on the Salicicola checklist, has been recorded at Cutler Park. Japanese hops, a plant classified as Likely Invasive by MIPAG (2005) was identified in the park circa 2009, and removed at that time. Additional examples of this plant may still be present.

Natural Communities

Only five natural communities, mostly Palustrine, have been identified. (Table 3.2.5)

Table 3.2.5. Known natural communities of Cutler Park Reservation and associated properties.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Alluvial red maple swamp	P	S3	1
Cultural grassland	T	N/A	1
Deep emergent marsh	P	S4	2
Level bog	P	S3	3
Shrub swamp	P	S3	2

a. Classified according to Swain and Kearsley (2011).

b. E = Estuarine, P = Palustrine, T = Terrestrial.

c. The NHESP ranks communities from most rare (S1) to the most common (S5).

d. Information contained in this table was obtained from the following sources:
 1. RMP Planner.
 2. DEP Wetlands (1:12,000) data layer.
 3. Harper (2015).

The park's only identified Terrestrial community type is a 1.5 acre cultural grassland associated with the former Kennedy Farm. There is no information on the park's other Terrestrial plant communities.

Forests

Less than one-third of Cutler Park (31.82%) is covered in upland forest. These areas tend to be in the vicinity of Kendrick Pond, on the hills along the park's border with Route 128, and on Powell and Pine islands. Remnant red and Scots pine plantations occur on Pine Island and along the park's border with Vine Rock Street, Dedham. These plantations pre-date State ownership of Cutler, and are slowly being replaced by native white pine. Forested wetlands are present along some of the margins of Kendrick Pond and the Charles River. Non-forested areas include open water, marshes, and cultural grasslands.

Wildlife

Few formal surveys have been conducted. However, Cutler Park is a birding "hotspot" and as of December 2016, 145 species have been recorded for the park (eBird 2012). An additional 84 species have been recorded at Millennium Park, which is located across the Charles River from Cutler Park. These parks, and to a lesser degree Brook Farm, provide important habitat for wintering, migratory, and breeding birds in the metropolitan Boston area.

A survey of the fish of Kendrick Pond was conducted in 1972 (Bridges 1972). The following species were identified: largemouth bass, chain pickerel, white perch, yellow perch, bluegills, pumpkinseed sunfish, golden shiners, brown bullheads, and carp. The fish population was in “an excellent state of balance” and no management was recommended. It is unknown how closely this historic information reflects current conditions.

3.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and

post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Cutler Park is presented in Table 3.3.1. Cultural Resources are identified in Table 3.3.2.

Four archaeological resources are listed by the MHC as being in or adjacent to Cutler Park. Because the MHC does not make information on archaeological resources available to the general public, these resources are not included in Table 3.3.2.

Table 3.3.1. Significant events in the history of Cutler Park Reservation and associated properties.

Year(s)	Events
1931	Riverdale Park is established in Dedham along the Charles River.
1954	City of Newton connects to MDC water supply system making its water works in Needham unnecessary.
1955	The legislature authorizes that money paid for the taking of MDC lands for transportation purposes (e.g., the construction of Route 128) are to be placed into the Metropolitan Parks Trust Fund and used to purchase other lands to replace areas “taken, transferred or used.” (Chapter 693 of the Acts of 1955)
1955	The MDC is “authorized and directed to construct, improve and maintain such playgrounds, beach areas, skating rinks and other recreational facilities...as may be needed.” (Chapter 731 of the Acts of 1955)
1955	The City of Newton offers for sale all of its water works land in the Town of Needham.
1956	The Town of Needham establishes a Newton Water Lands Special Study Committee. They recommend that “the entire Charles River shorefront from Highland Avenue to the West Roxbury railroad track be kept open and in some form of public ownership, not to be built upon in any substantial way and to be accessible in perpetuity to residents...and others” (Newton Water Lands Special Study Committee 1957).
1957	The MDC is authorized and directed to “construct, enlarge and improve its recreational facilities” and may “take by eminent domain...or acquire by purchase, gift or devise, such public or private lands, water rights, easements or other interests in lands.” (Chapter 627 of the acts of 1957) This sets the stage for land acquisitions along the Charles River in Dedham, Needham, and Newton.
1958	The MDC takes by eminent domain land along the east side of the Charles River, between Nahanton Street and the Newton-Boston line, for inclusion in the Charles River Reservation. (Book 9112, Page 536)
1958	Two parcels of land “now or formerly of the City of Newton,” from Kendrick Street, Needham to the Needham-Dedham line, are taken for inclusion in the Charles River Reservation. (Book 3624, Page 186; Book 3624, Page 188) The City of Newton challenges these takings; several years of litigation and negotiation follow.
1959	The Kennedy Farm in Needham and additional land in Dedham are taken by eminent domain and added to the Charles River Reservation. (Book 3711, Page 327; Book 3708, Page 309)
1961	A one-year easement is granted to the MDC to allow park access through private land along Kendrick Street.
1962	MDC “water lands...situated in the general area bounded by Great Plain Avenue, state highway Route 128, Kendrick Street and the Charles River shall be known and designated as Cutler Park.” (Chapter 347 of the Acts of 1962)
1970	Additional land in Dedham is added to the Charles River Reservation through an eminent domain taking. (Book 4671, Page 161)
1973	A permanent easement is established to allow public parking on, and park access across, private industrial land on Kendrick Street, Needham.
2008	Riverdale Park is renamed The Honorable Marie-Louise Kehoe Park. (Chapter 499 of the Acts of 2008)

Table 3.3.2. Cultural resources of Cutler Park Reservation and associated properties.

Location and Resource	Type ^a	Date ^s	Condition ^e	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Newton Line Railroad								
Railroad bridge	ST	ca. 1851	4	H	-	-	-	1
Railroad track	ST	ca. 1851	5	L	-	-	-	1
Sign	OB	-	-	H	-	-	-	1
Newton Water Works								
Highland Avenue landscape	LA	1890–1895	-	H	-	-	-	1
Pipe support	ST	1890–1896	3	H	-	-	-	1
Drain pipe	ST	1890–1896	4	H	-	-	-	1
Embankment	ST	1876	3	M	-	-	-	1
Infiltration Gallery	AR	1876	-	U	-	-	-	1
2 nd Avenue pumping plant	BU	1890–1896	4	H	N	-	-	2
2 nd Avenue pumping plant staircase	ST	1890–1896	4	H	-	-	-	1
Distribution box - Basin 1	ST	1890–1896	4	M	-	-	-	1
Distribution box - Basin 2	ST	1890–1896	6	M	-	-	-	1
Well 2	AR	1890–1896	-	M	-	-	-	3
Bowl 1	ST	1890–1896	3	M	-	-	-	1
Bowl 1 - Dam and spillway structure	ST	1890–1896	5	H	-	-	-	1
Bowl 1 - Spillway outlet	ST	1890–1896	5	M	-	-	-	1
Bowl 2	ST	1890–1896	4	M	-	-	-	1
Bowl 2 - Dam	ST	1890–1896	4	M	-	-	-	1
Bowl 2 - Spillway outlet	ST	1890–1896	5	M	-	-	-	1
Bowl 2 & 3 cascading pipe	ST	1890–1896	3	H	-	-	-	1
Bowl 3	ST	1890–1896	4	M	-	-	-	1
Bowl 3 - Spillway pipe	ST	1890–1896	3	H	-	-	-	1
Bowl 3 - Dam	ST	1890–1896	4	M	-	-	-	1
Discharge valve	ST	1890–1896	5	M	-	-	-	1
Line valve	ST	1890–1896	5	M	-	-	-	1
Cranberry bog bowl	ST	1890–1896	4	M	-	-	-	1
Cranberry bog bowl - Dam structure	ST	1890–1896	4	M	-	-	-	1
Supply Well 1	ST	1890–1896	6	M	-	-	-	1
Supply Well 1 - Pump house	ST	1890–1896	6	L	N	-	-	1
Kendrick Pond pumping plant	ST	1890–1896	6	L	-	-	-	1
Kendrick Pond pumping plant - electrical pole	ST	1890–1896	4	M	-	-	-	1
River intake crib	ST	1890–1896	4	H	-	-	-	1
Access roads	ST	1890–1896	4	H	-	-	-	1
Brookline Water Works								
Brookline Water Works landscape	LA	1891	-	H	-	-	-	1
Pump house	BU	ca. 1910	5	M	N	-	-	2
Tubular wells	AR	1891	-	H	-	-	-	3
Access chamber	ST	1891	3	H	-	-	-	1
Access roads	ST	1891	3	H	-	-	-	1
Dam	ST	1891	3	H	-	-	-	1
Samuel Mills Settlement Area								
Cellar hole	AR	1844	-	L	-	-	-	3
Foundation	AR	1844	-	L	-	-	-	3
C. H. Hardy Residence	AR	-	-	-	-	-	-	3

Location and Resource	Type ^a	Date ^s	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Kennedy Farm								
Kennedy Farm landscape	LA	-	-	H	-	-	-	1, 4
Farmhouse	BU	-	4	H	N	-	-	3
Barn foundation	ST	-	5	L	-	-	-	1
Well	AR	-	-	M	-	-	-	3
Long Ditch								
Main ditch	LA	1653	-	H	-	-	-	1
Tributary ditches	LA	1653	-	H	-	-	-	1
The Causeway	ST	1701	-	L	-	-	-	1

- a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- b. Date of construction provided, when known.
- c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- d. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- f. The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- g. Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.
- h. The following guidance is offered for the ongoing maintenance of these cultural resources:
1. Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).
 2. Refer to Mothballing Historic Buildings BMP (DCR n.d. h).
 3. Refer to Archaeological Features BMP (DCR n.d.g).
 4. Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).

ARCHAEOLOGICAL RESOURCES

Good information is available on the archaeology of Cutler Park. The ACOE conducted two systematic archaeological surveys (MHC Reports #25-1964 and #25-2070) as part of the Historic Properties Management Plan for the Charles River Natural Valley Storage Project. These reports provide an overview, land-use guide, and action plan within and adjacent to ACOE properties. Five pre-Contact sites were located within Cutler Park adjacent to the Charles River. Nearby tributaries, wetlands, and ponds in this reservation provided ecosystems that would have attracted people to this place for thousands of years, and Cutler Park has a high archaeological potential for additional pre-Contact sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

One historical archaeological site, the C.H. Hardy Residence, is recorded for Cutler Park. This site has not been researched. It is described as a single

family dwelling house dating to the Colonial Period and used through to the Late Industrial Period.

HISTORIC RESOURCES

Much of the acreage in Cutler Park is subject to flooding, which limited initial development to high ground (i.e., uplands on the west side of the Charles River). In the late 1800s, areas subject to flooding were developed as part of two municipal water works. The park's historic resources reflect both patterns of development.

Historic Landscapes

Newton Water Works. In 1876 the Massachusetts legislature authorized the City of Newton to "take and hold, by purchase or otherwise, any lands within the Town of Needham, not more than one thousand yards distant from the Charles River, and lying between Kendrick's Bridge...and the new bridge near Newton Upper Falls" (Chapter 54 of the Acts of 1876). Newton established its first water works in Needham between Highland Avenue and Kendrick

Street. This area includes what is now the Highland Avenue parcel of the Charles River Reservation. Chapter 302 of the Acts of 1889 expanded Newton's authority to "any lands within the Town of Needham," and in 1889 it acquired approximately 640 acres of land in Needham, between Kendrick Street and Great Plain Avenue; this area constitutes most of Cutler Park.



Newton Water Works 2nd Avenue pumping house. This building had been mothballed, but has since been vandalized. (See Appendix K for photo information.)

The Newton Water Works used a bank infiltration system that used gravity to distribute, and sand banks to filter, potable water. In the 1890s the water works became more extensive and more industrialized to include pump houses, electric pumps, wells, and concrete dams. In 1954 the City of Newton connected to the MDC (now MWRA) water supply and abandoned this site. Pipes, pipe supports, remnants of pump stations, access roads, filtration beds, cisterns, and holding reservoirs may be viewed in the Kendrick Pond area and pipes, pipe supports, and a pump station may also be viewed in the Highland Avenue parcel of the Charles River Reservation. This landscape and its contributing elements retain much of their historic integrity. Additional information on the Newton Water Works is available at the Metropolitan Waterworks Museum in Chestnut Hill.



Remnants of the Newton Water Works are common at Cutler Park. (See Appendix K for photo information.)

Brookline Water Works. The City of Brookline also had water works in the park. These facilities were far less extensive than the City of Newton's, being limited to Powell's Island in Needham and Pine Island and adjacent lands in Dedham. Brookline's activities began in Dedham with a simple bank filtration system and, over time, expanded across the river to Powell's Island in order to meet growing demand. Brookline Water Works introduced a Driven Well System in which dozens of tubular wells, some up to 100 feet long, were installed throughout the wetlands in a branch like fashion. The most extensive resources are on Pine Island and include remains of a concrete-walled building heavily covered in graffiti, numerous small-diameter steel pipes protruding a foot or two above the ground, and a large brick structure. Much of the site's historic integrity has been lost. Additional information on the Brookline Water Works is available at the Metropolitan Waterworks Museum in Chestnut Hill.



Brookline Water Works pump house. (See Appendix K for photo information.)

Kennedy Farm. No information regarding the history of this farm was identified during the preparation of this RMP. Existing resources include a spring house, stone and mortar lined well, several small concrete foundations and slabs, a field stone and mortar chimney, and a fieldstone and mortar capped concrete retaining wall or foundation. The significance of these resources has not been assessed.



The Kennedy Farm spring house. (See Appendix K for photo information.)

Samuel Mills' Settlement Area. As Dedham grew it expanded westward, into what is now Needham. Among the first settlers west of the Charles River was Samuel Mills (ca. 1619–1694). Following his acceptance as a Townsman of Dedham in 1645, Samuel Mills petitioned for, and was granted, land in what is now Cutler Park (Crumbaker 1992). He acquired additional properties during his lifetime. In 1678 Samuel Mills and his son, Benjamin Mills Sr., built a house and small barn, and dug a well on a

knoll on the western edge of Broad Meadow; it was located between today's commuter rail tracks and Kendrick Pond. Additional settlers arrived in the area in the 1670s and 1680s. A history of settlement is provided in Crumbaker (1992). The Mills' homestead site has been identified and cellar holes and barn foundations of later settlers are still visible in the park (Crumbaker 1992).

Buildings

There are no historic buildings that are not associated with historic landscapes.

Structures

There are two historic structures, Long Ditch and The Causeway; both are located in Dedham.

Long Ditch. The section of Dedham now called Riverdale, and formerly called Dedham Island, was once a neck of land nearly surrounded by a five mile long stretch of the Charles River. It was the construction of Long Ditch, an approximately 3,200 foot long man-made channel, that converted the neck into an island. In 1652, permission "was granted to cut a creek or ditch through the "Broad Meadows" from river to river" (Hurd 1884). Surveying and construction soon followed. The purpose of this ditch was to drain floodwaters downstream rather than allowing them to accumulate in the meadow that was being used for grazing cattle. Over time, additional drainage ditches were cut into the marsh and the ditch itself has been dredged and widened. Long Ditch, like Mother Brook which is also in Dedham, represents the beginning of centuries of modifying the flow of the Charles River.



View of Long Ditch, looking north from Needham Street, Dedham. (See Appendix K for photo information.)

The Causeway. In the early 1600s, settlers in Dedham would farm the “Great Playne” in what is now Needham (Crumbaker 1992). Planters travelled over “a muddy cart path cut through the tall grass and reeds of the Broad Meadows” (Crumbaker 1992). In 1701, a causeway was constructed along this path, over “the channel of “Long Ditch” where it leaves the river” (Hurd 1884). The portion of Great Plain Avenue east of Route 128 is believed to follow the path of the causeway. A portion of this path may be located in the Great Plain Avenue parcel of the Charles River Reservation. Given the construction and reconstruction of Needham Street, Great Plain Avenue, and Route 128, its historic integrity is believed to be low.

Objects

A short segment of railroad track is buried in the ground immediately south of the Kendrick Street parking lot. These rails were associated with Weyerhaeuser and Polaroid facilities formerly located at 60 and 140 Kendrick Street, respectively. All other historic objects are associated with the park’s historic landscapes.

3.4. RECREATION RESOURCES

Cutler Park has little recreation infrastructure; recreational activities in the park are either trail- or water-based. This level of development is appropriate given the park’s role as a flood control storage basin for the Charles River. The Highland Avenue parcel of the Charles River Reservation also has minimal recreation development (i.e., a picnic area). In contrast, Kehoe Park has formal recreation facilities. The following recreation activities take place in Cutler Park and its associated properties:

- Basketball (four half-courts; Kehoe Park only)
- Bicycling, mountain
- Boating, non-motorized
- Canoeing/Kayaking
- Dog walking, on leash
- Fishing
- Geocaching (3 caches as of December 2016)
- Hiking
- Nature study/Photography
- Picnicking (Charles River Reservation, Highland Avenue parcel and Kehoe Park only)

- Playground activities (swings and climbing structure; Kehoe Park only)
- Running/jogging
- Tennis (Kehoe Park only)



Kehoe Park athletic courts; the Charles River lies just beyond the row of trees at the far edge of the courts. (See Appendix K for photo information.)

Water-based recreation includes the use of car-top boats, including canoes, kayaks, and stand-up paddle boards. There are several car-top boat launches in and around Cutler Park. Canoes may be launched from the Great Plain Avenue parcel of the Charles River Reservation and at Kehoe Park. Launch facilities are also available at the City of Newton’s Nahanton Park; the Town of Dedham’s Needham Street Launch near Long Ditch; and at the City of Boston’s Millennium Park. These locations may also be used for fishing access.

In addition to recreational dog walking, there is also a high level of commercial dog walking. Multiple companies, each with several dogs, may use the park at the same time.

The Kendrick Street parking lot is used as a starting location for road-based bicycling outside the park. The Charles River Wheelman, a non-profit organization of Boston-area recreational cyclists, schedules “Fitness and Master Rides” every Wednesday evening during appropriate weather. They also schedule infrequent Saturday rides through “Needham, Dover, and Beyond.” Riders park their vehicles in the Kendrick Street parking lot, and use it as the starting point of their rides.

3.5. INFRASTRUCTURE

Property Boundary

The boundary of Cutler Park is largely defined by roads and the Charles River. The park's northern boundary abuts commercial development along Kendrick Street. Its western boundary is Route I-95/Route 128. Much of its southern boundary is Great Plain Avenue and Needham Street; the remainder is residences along Rosemary Road, Dedham. Its eastern boundary is the Charles River. The park's boundaries are not marked. In contrast, ACOE easement signs are highly visible. Likely encroachments were identified along the park's boundary with residences on Rosemary Road, Dedham.

The Charles River Reservation parcels are all bounded on one side by the river. The Highland Avenue parcel is bounded on the south by Kendrick Street, on the east by the river, on the north by Highland Avenue, and on the west by residences and 4th Avenue. The Great Plain Avenue parcel falls within a triangle created by Route 128, Great Plain Avenue, and the river. The Newton parcel is bounded on the west by the river; on the north by Nahanton Street; on the east by the Helen Hayne Riverway Conservation Area, residences, and commercial properties; and on the south by DCR's Brook Farm Historic Site. None of the parcels'

boundaries are marked. No potential encroachments were identified for these parcels.

Kehoe Park is bordered on the west by Riverside Street, on the south by Bridge Street, on the east by the Charles River, and on the north by an undeveloped extension of Vine Rock Street and a parcel of the Charles River Reservation at 191 Vine Rock Street. Although its boundaries are not marked, they are easily discernible. No potential encroachments were identified for this park.

Some of the takings associated with the acquisition of Cutler Park include specific exceptions, such as a City of Newton sewer and drain easement and the right of the New York, New Haven, and Hartford Railroad Company to operate and maintain a railroad. Readers are directed to parcel deeds for specific information on reserved rights.

Buildings and Structures

There are no non-historic buildings. Non-historic structures are limited to boardwalks at Cutler Park and the Highland Avenue parcel of the Charles River Reservation. (Table 3.5.1) There are approximately 1,600 linear feet of boardwalks at Cutler Park and approximately 75 feet of boardwalk at the Highland Avenue parcel of the Charles River Reservation. Conditions of these boardwalks range from good to poor. An example of a boardwalk at Cutler Park is shown in the photo on Page 3-1.

Table 3.5.1. Non-historic buildings and structures of Cutler Park Reservation and associated properties.

Location and Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
Charles River Reservation – Highland Avenue				
Boardwalk (1)	-	2	-	-
Cutler Park				
Boardwalks (2)	-	3	-	-

a. Date of construction provided, when known.

b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

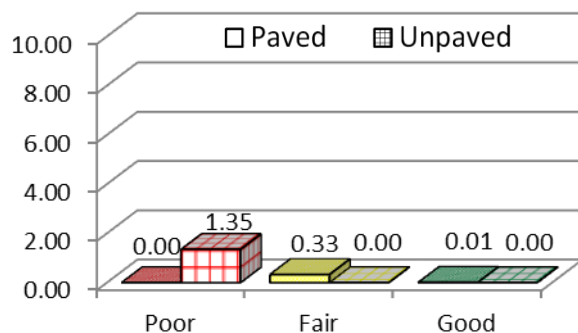
Roads

A series of dirt, forest roads pass through the upland portions of the park. Some are associated with the former Newton Water Works, while others are associated with earlier settlements. These roads have largely been incorporated into the park's trails network.

A section of paved road runs the length of the Charles River Reservation's Great Plain Avenue parcel in Needham. This road is a portion of the former layout of Great Plain Avenue. It dead ends at the eastern edge of Route 128.

The length and condition of these roads are depicted in Figure 3.5.1.

Figure 3.5.1. Condition and length (in miles) of roads in Cutler Park Reservation and associated properties.



Parking

There are three public parking lots. (Table 3.5.2) The first is located just outside the park on the south side of Kendrick Street, Needham. This lot is privately owned, and is used in accordance with a 1973 easement that permits parking and park access. There is only one designated HP space; less than the required minimum number (i.e., 2). The Kendrick Street lot is also used for parking for the Charles River Reservation's Highland Avenue parcel. Use of this lot is shared among park visitors and PTC employees; only a small number of spaces are available to visitors during business hours.

Table 3.5.2. Number of public parking spaces, by location and type, at Cutler Park Reservation and associated properties.

Location	HP	Restricted	Other	Total
Cutler Park				
Kendrick St. lot ^a	1	2	100	103
Needham St. lot ^b	0	0	8	8
Charles River Reservation				
Old Great Plain Ave, Needham ^c	0	0	37	37
Total	1	2	145	148

- Two spaces are reserved for PTC research and development employees.
- Includes paved and unpaved spaces.
- Assumes 900 feet of parking along the north shoulder of the closed road.



The Kendrick Street parking lot, the gateway to Cutler Park, is located on private commercial property. (See Appendix K for photo information.)

The second lot is located off Needham Street, Dedham; adjacent to Kennedy Farm. (Table 3.5.2) It is believed to be located partly within the park and partly within the road's right-of-way. Only five of the lot's spaces are paved.

Parking is also available across the road from the Needham Street lot, in the Charles River Reservation's Great Plain Avenue parcel. (Table 3.5.2) There is no formal lot at this location, only roadside parking along old Great Plain Avenue.

There is no parking lot at Kehoe Park, only roadside parking along Riverside Drive, Dedham.

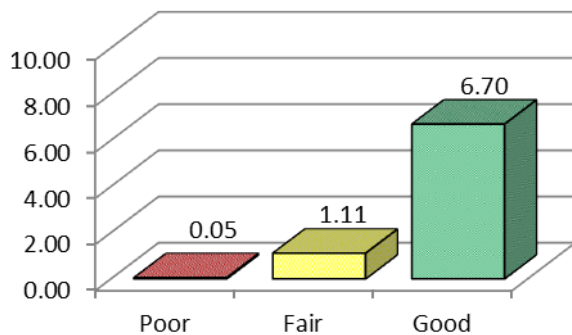
Additional parking for Cutler Park is available at the City of Newton's Nahanton Park, approximately 0.25 miles east of the Kendrick Street parking lot. This lot, along with roadside parking on Sawmill

Brook Parkway, Newton and multiple lots at the City of Boston's Millennial Park provide parking for the Blue Heron Trail. (See Trails, below for additional information on this trail.)

Trails

Cutler Park's trails system is largely based on forest roads. These roads are supplemented in the uplands by sections of single track, and in wetlands by a series of boardwalks. The number of miles of trails, by condition, is presented in Figure 3.5.2.

Figure 3.5.2. Condition and length (in miles) of official trails at Cutler Park Reservation and associated properties.



A 1.25 mile long portion of the park's trails is a designated Healthy Heart Trail. This trail loops around Kendrick Pond on forest roads associated with the former Newton Water Works; it is not ADA accessible. The eastern portion of the Healthy Heart Trail is also part of the Blue Heron Trail.

The Blue Heron Trail is an approximately 9.5 mile long multi-town, multi-property trail. It passes through five DCR properties: Cutler Park; the Charles River Reservation, Newton; Kehoe Park; Havey Beach; and Brook Farm Historic Site. It also passes through the City of Boston's Millennium Park and the City of Newton's Helen Hayne Riverway Conservation Area. In the latter, the Blue Heron Trail runs concurrent with the Helen Hayne Riverway. The Blue Heron Trail is not limited to open space, and requires users to travel along sidewalks through residential neighborhoods and commercial development in Dedham and Boston.

The Charles River Reservation's Highland Avenue parcel has a trail that extends from Highland Avenue to the north, to 4th Avenue to the south. It was paved in 2015.

A paved sidewalk parallels the Charles River for approximately 1,100 feet at Kehoe Park. This sidewalk is part of the Blue Heron Trail.

The Town of Dedham has designated an approximately 6.5 mile loop of the Charles River and Long Ditch as the Dedham Water Trail. This canoe, kayak, and paddle board trail passes through Cutler Park and beside Kehoe Park, both of which are identified as points of interest along the trail. It has been designated a National Recreation Trail. See www.dedhamtrails.org for additional information.

Kiosks and Signs

The park's only kiosk is located near the entrance to the Kendrick Street parking lot. Smaller map boards are located adjacent to the Needham Street parking lot, near the intersection of Vine Rock Street and Riverside Drive, and in Kehoe Park; all are located in Dedham. One additional map board is located at the southern end of Saw Mill Brook Parkway in Newton, at an entrance to the Newton parcel of the Charles River Reservation.

The park's main identification sign is located at the entrance to the Kendrick Street parking lot. A cantilevered identification sign is located in Kehoe Park, along Bridge Street, Dedham. Sign posts and a backing board are located at the entrance to the Charles River Reservation on Highland Avenue, Needham; there is no sign.

Entrances to trails in the Charles River Reservation are typically identified by a pair of granite posts, each bearing the engraved silhouette of a heron. Within the properties included in this chapter, such posts are located at the intersection of 2nd and 4th Avenues, the northeast corner of the intersection of Kendrick Street and 4th Avenue, and adjacent to the main Cutler Park parking lot; all are in Needham. There are no posts at any of the entrances to the Newton parcel of the Charles River Reservation.



Granite posts, like this one at Cutler Park, mark main trail entrances along the Charles River Reservation. (See Appendix K for photo information.)

Iron Ranger

There are no iron rangers in the park or associated properties.

Memorials and Markers

A memorial stone with a metal marker is located in the Highland Avenue section of the Charles River Reservation, opposite 115 4th Avenue. It is in honor of Arthur Barnes (1914–1994), an advocate for the “preservation of all creation.”

3.6. INTERPRETATION

There is no regular interpretive programming at Cutler Park.

3.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

Cutler Park and associated properties are managed by MassParks staff based at the Blue Hills Reservation. (See Table 2.7.1) There are no employees based at Cutler.

Partnerships and Volunteers

The Trustees of Reservations (The Trustees) provide stewardship for the Charles River Reservation between Kendrick Street, Needham and Watertown Square. In the past, The Trustees’ field staff worked to improve stewardship on the Charles River Reservation; for several years this work was done by The Trustees’ youth corps. The youth corps is

currently “on pause,” as The Trustees reassess the future of this group (Cook 2015). The Trustees still provides groups of volunteers for special events, such as a Charles River cleanup day.

There is no friends group for Cutler Park.

Safety

Local municipal fire departments provide fire response and emergency services. Personnel from DCR’s Fire Control Districts 4 and 14 provide assistance. Municipal police departments, the Massachusetts State Police (Station H-2, Framingham), and the Massachusetts Environmental Police (Regions C-6 and C-7) provide law enforcement.

Funding

Conservation Trust Fund

There are no trust funds.

Retained Revenue

The park does not generate or retain revenue.

Other Revenues

The family of Arthur Barnes provided The Trustees a \$400,000 “greenway partnership endowment” to support their stewardship activities along the Charles River. In the past, this endowment has been used for stewardship of the Charles River Reservation and for funding projects such as repaving portions of the greenway, tree work, and fence installation.

3.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 3.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of Cutler Park. Legal agreements unique to the reservation are listed in Table 3.8.1.

Table 3.8.1. Key legal agreements for Cutler Park Reservation and associated properties.

Party and Subject of Agreement	Type ^a	Expiration Date ^b
Department of Conservation and Recreation and The Trustees of Reservations Memorandum of Agreement between Department of Conservation and Recreation, Commonwealth of Massachusetts and The Trustees of Reservations.	A	2008
U.S. Army Corps of Engineers and the Commonwealth of Massachusetts. Agreement between the United States of America and Commonwealth of Massachusetts for local cooperation at the Charles River Natural Valley Storage Areas, Project, Massachusetts.	A	N/A
New England Mutual Life Insurance Company, Polaroid Corporation and Metropolitan District Commission. “Permanent right and easement to use” for parking and park access.	E	N/A

a. Agreement types include: A = Memorandum of Agreement; C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

b. Year that agreement expires.

A 1973 agreement among the New England Mutual Life Insurance Company, Polaroid Corporation, and MDC (Document # 339362) permanently established park access across, and public parking on, private land along the south side of Kendrick Street, Needham. Under this agreement the MDC could establish a park entrance, use this entrance “as a means of access to and from” Cutler Park; install suitable markers (i.e., signs) at the entrance; maintain the entrance’s signs and landscaping; and have “equal rights, in common, for the supervised parking of any vehicles” in a designated joint parking area. This agreement made possible creation of a gateway to the park.

In 1977 the Commonwealth and the ACOE entered into an agreement whereby the Commonwealth would furnish the “non-Federal cooperation” needed to implement the Charles River Natural Valley Storage Areas Project. This cooperation took the form of: preventing “modification or alteration of existing roadways, utilities, bridges, culverts, and any other improvements” that might affect drainage

characteristics; “adopt and enforce regulations to restrict development of flood plain lands,” and operate and maintain the existing dams along the Charles River.” This agreement did not provide the ACOE any legal interest in State-owned property. During the preparation of this RMP, an effort was made to locate and review an ACOE-held easement on Cutler Park. No easement was found.

Only one previous planning document was identified for Cutler Park; it is identified in Table 3.8.2.

Table 3.8.2. Key management and guidance documents for Cutler Park Reservation and associated properties.

Author and Document	Year
R. H. Homer Associates Cutler Park <i>This report is an assessment of the potential impacts of a proposed access road and parking area on the ecology of the park.</i>	1971

Annual Maintenance

Ongoing management practices typically follow a regular schedule. Common activities, and the desired frequency with which they occur, are identified in Table 3.8.3.

Table 3.8.3. Annual cycle of management activities at Cutler Park Reservation and associated properties.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Litter removal - Recreation areas	AN	AN	AN	N/A
Litter removal - Trails	AN	AN	AN	AN
Maintenance - Picnic sites, fences, etc.	AN	AN	AN	N/A
Mowing and trimming	AN	E7	AN	N/A
Mulching and fertilizing	AN	AN	AN	N/A
Playground inspection	AN	AN	AN	N/A
Pruning - Trees and shrubs	AN	AN	AN	AN
Sweeping - Walkways	AN	AN	AN	AN

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

Natural Resources

Water Resources

There are no rare water resource management activities.

Rare Species

There are no rare species monitoring or management activities.

Invasive Species

Cutler's invasive species have been identified by Salicicola (2015*b*) as part of its efforts to inventory the park's flora. There is no ongoing monitoring or control. Infrequent efforts, such as the removal of a population of Japanese hops circa 2009, take place on an as needed basis.

Vegetation

Field operations personnel from the Blue Hills cut the grass at Kehoe Park on an as needed basis during the spring and fall, and approximately weekly during the growing season. Fallen leaves are collected and removed once per year, during the fall.

The cultural grassland adjacent to the Kennedy Farm is mown annually in the fall by field operations personnel from the Blue Hills.

There are no ongoing forest inventory or management activities. An "urban forestry project" took place at the north end of Cutler Park in 1972 (Lynch 1973) this involved the cutting of approximately 185 trees with the goal of creating "a natural looking English park for the next 60 years with maintenance cutting kept at an absolute minimum." Ongoing cuttings were to take place every five to ten years; they were not continued.

Downed trees and limbs are cleared or pruned on an as needed basis.

Charles River Landing, a luxury apartment complex located adjacent to the Needham parcel of the Charles River Reservation, voluntarily maintains turf and ornamental plants on that portion of the Reservation directly abutting their property.

Wildlife

There is no stocking of fish or game species.

Four bluebird boxes have been erected along the edges of the field at Kennedy Farm.

Cultural Resources

There are no cultural resource management activities unique to this park.

Recreation Resources

DCR's Parks and Recreation Rules specifically prohibit hunting and trapping throughout the entire Reservation, unless authorized by the Commissioner or specifically authorized by law (302 CMR 12.11(3) ii).

The use of watercraft in the Reservation is specifically regulated by DCR's Parks and Recreation Rules (302 CMR 12:00). Only cartop boats may be launched from or used in Kendrick Pond or Kehoe Park.

Infrastructure

Boundary

The ACOE hires contractors to monitor and mark its easements within the Charles River Natural Valley Storage Area. These contractors have posted signs at Cutler Park, indicating that portions of the park are subject to an ACOE easement. However, as previously indicated, no easement documentation was identified during the preparation of this RMP.



Although U.S. Army Corps of Engineers easement signs are prominently displayed at Cutler Park, the existence of such an easement could not be verified. (See Appendix K for photo information.)

Buildings

Minor repairs to the Kennedy Farm spring house are performed by field operations personnel based at the Blue Hills.

Roads

There are no ongoing road maintenance activities.

Parking Areas

The 1973 easement that allows the use of the Kendrick Street parking lot does not require that DCR maintain the lot.

Trails

Earthen trails and trail markings in Cutler Park and the Charles River Reservation are maintained on an as needed basis by DCR rangers based at the Blue Hills. Portions of the Blue Heron Trail not on DCR property are maintained by the land owner.

Boardwalks are walked and inspected each spring by field operations personnel from the Blue Hills. Minor repairs are made during the inspection; major repairs are made later in the year.

Kiosks and Signs

DCR employees based at the Blue Hills are responsible for updating the content of kiosks and sign boards.

The Town of Dedham is responsible for maintaining markers and signs for the Dedham Water Trail.

3.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Cutler Park and associated properties. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 3.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 3.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

The following sections of Cutler Park have been designated Zone 1.

- There are no Zone 1 areas at Cutler Park.
- There are no Zone 1 areas in portions of the Charles River Reservation within the Blue Hills Complex.

Zone 2

- All of Cutler Park, with the exception of currently developed areas as identified in the Zone 3 description, below.
- All portions of the Highland Avenue and Newton parcels of the Charles River Reservation within the Blue Hills Complex.
- Undeveloped portions of the Great Plain Avenue parcel of the Charles River Reservation.

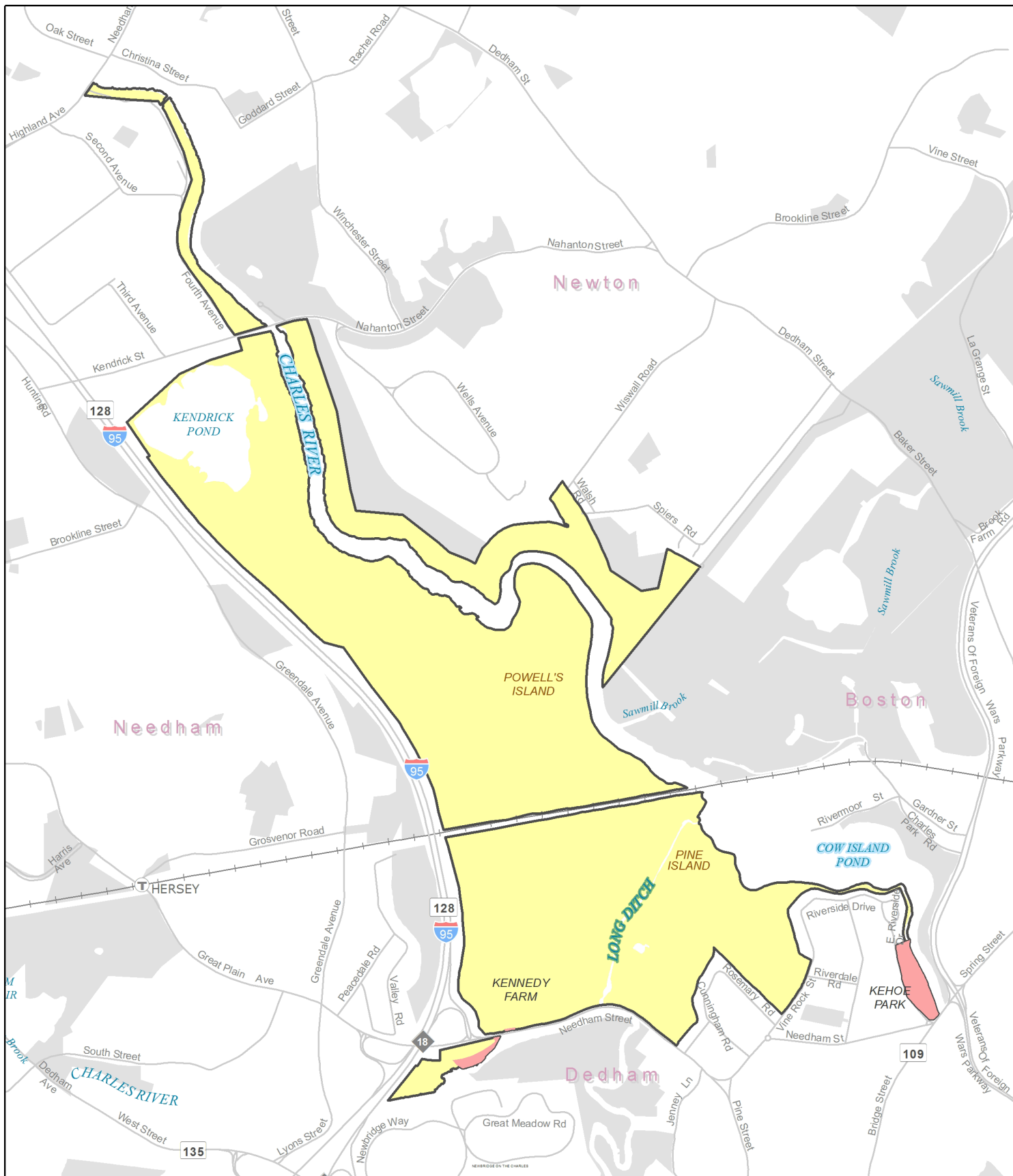
Zone 3

The following portions of Cutler Park and associated properties are currently developed, appropriate for potential future development, or intensively used for recreation. They have been designated Zone 3.

- Kennedy Farm, existing parking area along Needham Street, Dedham.
- Kehoe Park (all).
- Charles River Reservation's Great Plain Avenue parcel; existing roads and car top boat launch.

Significant Feature Overlay

There is no Significant Feature Overlay.



- Cutler Park Reservation
- Other Legal Interest - DCR
- Other Protected Open Space

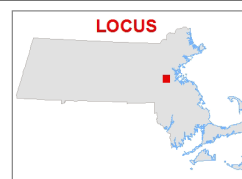
Land Stewardship Zoning

- Zone 1
- Zone 2
- Zone 3

Cutler Park Reservation

Figure 3.9.1

Recommended Land Stewardship Zoning



1,000
Feet

Geographic information provided by MassGIS and DCR GIS. 2016

Management Recommendations

Four priority management recommendations were developed for Cutler Park Reservation and associated properties. (Table 3.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.

- The imminent loss of a natural, cultural, or recreation resource.

Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

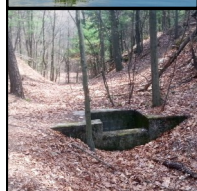
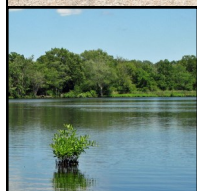
All recommendations are of equal priority.

Table 3.9.1. Priority recommendations for Cutler Park Reservation.

Recommendation	Implementation ^a
Work with local Boards of Health and the Massachusetts Department of Public Health to ensure that Fish Consumption Health Advisory signs are posted at major fishing access points at Cutler Park, Charles River Reservation, and Kehoe Park.	R
Repair damage to mothballing of Newton Water Works pump house.	P, S
Work with commercial pet walkers to obtain the required permit for their commercial activity at Cutler Park.	B, L, R
Survey boundary of Cutler Park, along Rosemary Road, Dedham, to determine if encroachments have occurred; resolve as warranted.	F, L

- a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Bureau of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.

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Cutler Park Reservation

Cutler Park is an oasis of nature amidst the residential, commercial, industrial, and transportation-related development of metropolitan Boston. The park is located along the western bank of the Charles River in Needham and Dedham adjacent to Broad Meadow, a large freshwater marsh. It provides access for water-based recreation, such as canoeing and fishing, as well as trails for hiking and mountain biking. A system of boardwalks connects the park's upland areas and islands, creating a trails network that passes over the marsh. The parkland was once the site of two water works that provided drinking water from the Charles River to Newton and Brookline residents. Parts of these historic water works may still be observed throughout the woods as you walk along Cutler's trails.

Associated with Cutler Park is the Honorable Marie-Louise Kehoe Park. This park, formerly called Riverdale Park, is located on the west bank of the Charles River in Dedham. It provides recreation facilities for the surrounding neighborhood.

Top Attractions

- Basketball and tennis courts at Kehoe park
- Blue Heron Trail—a multi-town, multi-property trail network
- Scenic views of the Charles River
- Trails network

Friends Group

- None

Partners & Permittees

- The Trustees

Conservation Opportunities

- Increase protection and public awareness of cultural resources associated with the historic water works.
- Enhance the visitor experience by applying recently developed DCR regulations that manage commercial dog walking.
- Work with local Boards of Health to increase park visitors' awareness of fish consumption advisory.

Park Inventory

Date Established

Cutler Park:	1962
Riverdale Park:	1931
Kehoe Park:	2008

Landscape Designation

Cutler Park:	Parkland
Kehoe Park:	Parkland

Management

This park is managed by staff from the Blue Hills Reservation

Park Size (acres)

Total Area:	772.0
Wetlands:	464.0
Lakes and Ponds:	46.0

Rare Species

State-listed:	4
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Cultural Resources

Documented:	49
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Miles of Roads

Paved:	0.3
Unpaved:	1.4

Miles of Trails

Official:	7.9
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DCR Recreation Facilities

Basketball Half Courts:	4
Boat Launch:	2
Picnic Areas:	2
Playgrounds:	1
Tennis Courts:	2



Wilson Mountain Trail, as viewed from the trailhead at the parking lot. (See Appendix K for photo information.)

SECTION 4. WILSON MOUNTAIN RESERVATION

4.1. INTRODUCTION

Wilson Mountain Reservation (Wilson Mountain) is located in the town of Dedham, southeast of the intersection of Routes 128 and 135. (Figure 4.1.1) It is situated approximately 4.5 miles northwest of the Blue Hills Reservation. The park is accessed via Route 135 (i.e., Common Street).

Protection efforts began in 1987, when the MDC sought to acquire the property in order to “provide scenic vistas, trails and other recreational activity” (MDC 1995). At that time, Wilson Mountain was one of the largest parcels of unprotected land within Route 128.

In 1994 the MDC acquired approximately 198 acres of land south of Common Street. It also acquired two parcels, totaling approximately 3.3 acres, north of Common Street. The northern parcels were acquired through a multi-partner effort that involved the Dedham Land Trust (DLT), Trust for Public Land (TPL), and the MDC. In 1998, additional parcels were acquired north of Common Street, once again with the assistance of TPL. The park’s size has remained unchanged since then.

The portion of Wilson Mountain located north of Common Street is known as Whitcomb Woods, in

honor of the family that previously owned the land. The same name is often applied to an adjacent DLT property. As used in this section, the term Whitcomb Woods refers only to the DCR-owned parcels.

Wilson Mountain is best known for trail-based recreation including hiking, dog walking (both private and commercial), and nature study. Its trails system connects to the Charles River via trails on adjacent DLT property.

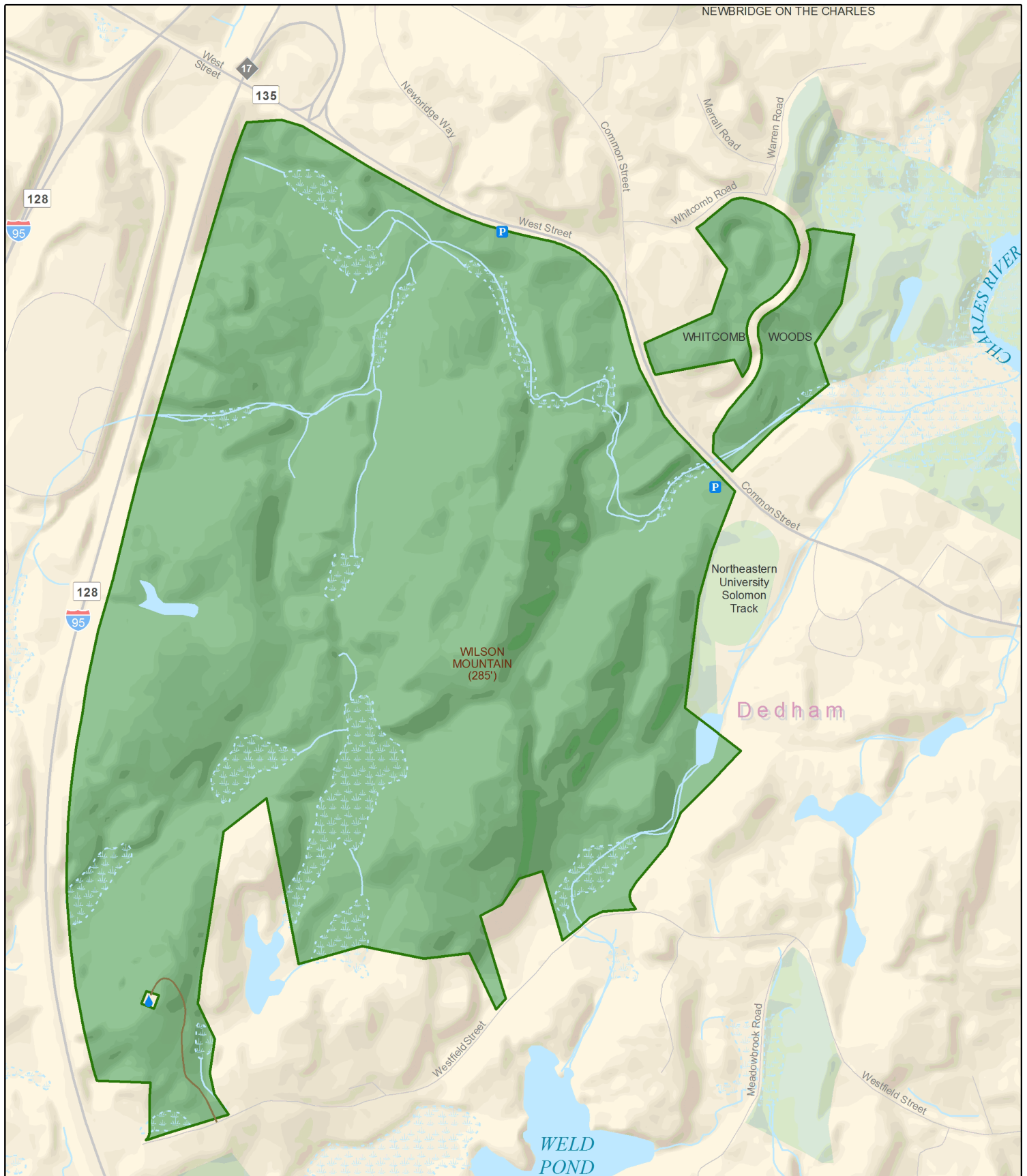
The park’s physical, political, and regulatory attributes are summarized in Table 4.1.1.

Table 4.1.1. Physical, political, and regulatory settings of Wilson Mountain Reservation.

Setting	Name or Metric
Location:	Dedham
Area (acres)^a:	214.04
Perimeter (miles)^a:	4.03
Landscape Designation^b:	Parkland
Legislative Districts:	
House	11 th Norfolk
Senate	Norfolk and Suffolk
Regulatory Designation:	None identified

a. Calculated using a Geographic Information System (GIS).

b. For a summary of DCR’s landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.



- Wilson Mountain Reservation
- Blue Hills Complex Land
- Other Protected Open Space
- DCR Legal Interest
- Public Parking
- Water Tower

Wilson Mountain Reservation

Figure 4.1.1

1,000 Feet

Geographic information provided by MassGIS and DCR GIS, 2016

LOCUS

Associated Properties. There are no associated properties. Whitcomb Woods is not a separate property, but a part of Wilson Mountain.

4.2. NATURAL RESOURCES

Physical Features

There is no mountain at Wilson Mountain; however, there are hills. South of Common Street, elevations range from 118 to 298 feet above sea level. Three hilltops in this area are at least 285 feet in elevation. The highest of these is both the highest point in the reservation and in the Town of Dedham. The lowest elevation in this section of the park, approximately 118 feet above sea level, is adjacent to the Bernard and Jolane Solomon Track on the Northeastern University Dedham Campus. North of Common Street, the land slopes from west to east, toward the Charles River; elevations range from approximately 147 to 90 feet.

Water Resources

Wilson Mountain's water resources are all surficial; there are no known aquifers beneath the park. (Table 4.2.1) Surface waters include a variety of wetlands and streams. Although a few wetlands are isolated, most are interconnected by one of two unnamed intermittent streams. The first stream originates west of the park, in the Route 128 median. It flows eastward into and through the park, passing under Common Street and Whitcomb Woods on its way to the Charles River. The second stream originates south of the park, in Weld Pond. It flows northward, entering the park, and then runs northeast, approximately paralleling the park's boundary. It then flows to the Charles River via the Northeastern University Campus and the property at 391 Common Street.

Table 4.2.1. Water resources of Wilson Mountain Reservation.

Water Resource	Name or Metric
Watershed:	Charles
Aquifer:	
Medium Yield (acres)	0.00
High Yield (acres)	0.00
Rivers and Streams (miles)	1.16
Vernal Pools	
Certified (#)	0
Potential (#)	3
Wetlands (acres)	13.36
Lakes and Ponds (acres)	0.87

One of Wilson Mountain's Potential Vernal Pools, located just south of West Street, qualifies for certification (Quiñones 2015).

Little of the reservation is subject to flooding. (Table 4.2.2) Areas predicted to be impacted by a 500-year storm are chiefly isolated wetlands. The portion of Whitcomb Woods closest to the Charles River, approximately 0.13 acres in area, is also predicted to be impacted. Portions of the Swamp Trail and Long Path will be affected by these floods.

Table 4.2.2. Potential impacts of flooding to Wilson Mountain Reservation.

Type of Impact	Acres	%
Flooding:		
100-year Storm	0.00	0.00
500-year Storm ^a	11.52	5.38

a. Cumulative value; includes 100-year storm impacts.

Rare Species

State-listed Species

No state-listed species are known from Wilson Mountain.

Priority Habitat

There is no Priority Habitat.

Vegetation

The best available information on the reservation's plants comes from 2011 Dedham BioBlitz data for Wilson Mountain and Whitcomb Woods, combined (Dedham Natural Wonders 2012). Volunteers identified 192 plants, including 180 vascular plants, nine ferns, and three clubmosses. Also identified were 10 lichens and 16 mushrooms.

Invasive Species

The 2011 Dedham BioBlitz (Dedham Natural Wonders 2012) identified ten species considered invasive or likely invasive by MIPAG (2005). (Table 4.2.3) Two additional invasive plants are known from Whitcomb Woods.

Table 4.2.3. Known invasive plants of Wilson Mountain Reservation.

Species ^a	Status ^b	Source ^c
Black swallowwort	I	1, 2
Common buckthorn	I	1, 2
Creeping buttercup	L	1
Garlic mustard	I	1, 2
Glossy buckthorn	I	1, 2
Japanese barberry	I	2
Morrow's honeysuckle	I	1
Multiflora rose	I	1
Norway maple	I	1
Oriental bittersweet	I	1
Purple loosestrife	I	1
Winged euonymus	I	2

- a. Presented alphabetically, by common name.
 b. Plants are classified as Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
 c. Information contained in this table was obtained from the following sources:
 1. 2011 Dedham BioBlitz data (Dedham Natural Wonders 2012).
 2. Incidentally observed by RMP Planner during site visit.

Natural Communities

There is no information on the park's natural communities.

Forests

Most of Wilson Mountain (195.39 acres, 91.29%) is forested. There is no information on the composition, structure, or health of this forest. Non-forested areas include open water, wetlands, maintained lawn, and a parking lot.

Wildlife

In general, there is little information on the park's wildlife. A preliminary list of birds is available on eBird (2012); as of December 2016 it included 41 species.

Information is virtually non-existent on taxa other than birds. Dedham BioBlitz data from 2011 only includes one amphibian (spotted salamander), one insect (twelve-spotted skimmer), and one worm (common earthworm). There is no information on the park's mammals or reptiles.

4.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Wilson Mountain is presented in Table 4.3.1. Cultural Resources are identified in Table 4.3.2. There are no archaeological resources listed by the MHC for this park.

Table 4.3.1. Significant events in the history of Wilson Mountain Reservation.

Year(s)	Events
1987	The MDC begins efforts to acquire Wilson Mountain.
1993	The Massachusetts General Court directs the MDC to "study the feasibility of acquiring Wilson Mountain, so-called, in the town of Dedham for conservation purposes." (Chapter 110 of the Acts of 1993)
1993	The Trust for Public Land (TPL) acquires two parcels on the north side of Common Street. These parcels, which are part of Whitcomb Woods, are sold to the MDC for park purposes.
1994	Wilson Mountain acquired by the MDC.
1998	Additional parcels are added to Whitcomb Woods through land acquisition by the TPL and MDC.
2008	DCR and The Trustees of Reservations establish a Memorandum of Agreement for the stewardship of Wilson Mountain.

Table 4.3.2. Cultural resources of Wilson Mountain Reservation.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Wilson Mountain								
Wilson Estate	LA	ca. 1800	-	M	-	-	-	1, 2
Carriage paths	ST	ca. 1800	4	M	-	-	-	1,2
Stone pillar	ST	ca. 1800	2	H	-	-	-	2
Log cabin	ST	ca. 1950	6	L	-	-	-	-
Whitcomb Woods								
Whitcomb Estate	LA	ca. 1800	-	H				2
Raceways	ST	ca. 1800	2	H	-	-	-	2
Foot bridge	ST	ca. 1800	2	H	-	-	-	2
Stone walls and metal entrance gates	ST	ca. 1800	3	H	-	-	-	2

- a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- b. Date of construction provided, when known.
- c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- d. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- f. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- g. Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.
- h. The following guidance is offered for the ongoing maintenance of these cultural resources:
1. Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).
 2. Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

Wilson Mountain is characterized by uneven rocky topography that ranges from low swamps to high rock outcroppings, including those that were a valued source of raw material for Native American stone workers. There are no documented pre-Contact archaeological sites within Wilson Mountain. However, multiple pre-Contact sites have been documented within a 1 mile radius of the DCR property adjacent to the Charles River. These sites date from the Archaic through Woodland Periods (9,000–2,000 BP). Wilson Mountain has a moderate potential for the recovery of pre-Contact sites, near wetlands and ponds. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

Wilson Mountain remained unsettled through historic times. This was largely due to its rugged, uneven topography and the fact that it is part of a broader arc of uplands that circles the lower lying portions of Boston. Accordingly, historic period archaeological remains are few. No historic archaeological resources are recorded on the MHC inventory.

HISTORIC RESOURCES

The park is named for John F. Wilson, the first recorded owner of the land. The most significant known historic-resources date from the mid-18th to early 19th century, and consist of linear structures (stone walls, raceways) and carriage roads that served to help develop the woodland into estates for the area's first colonial residents.

Historic Landscapes

Wilson Estate. This landscape was once the estate of John F. Wilson. It is characterized by a lack of historic development, the presence of wide carriage paths, and a stone pillar at what is now the intersection of the Meadow Path and Wilson Mountain Trail. Stone walls, which are common in many of the Blue Hills Complex's properties, are absent from the Wilson Estate suggesting that the estate had not been subdivided into pastures.



The Wilson Estate's stone pillar. (See Appendix K for photo information.)

Whitcomb Estate. This portion of land, once owned by the Whitcomb family, is a section of a once larger estate that was subdivided and sold. Historic resources on this section of the park are segments of a larger system developed for that estate. The most visible are the series of stone walls originally used to delineate property boundaries in the 18th century, as well as stone lined raceways and accompanying footbridges that wind throughout the property. The integrity of these resources is remarkably high, with most of their character defining features remaining in place.



Stone walls and an iron gate mark the entrance to Whitcomb Woods. (See Appendix K for photo information.)



This stone raceway channels water from Wilson Mountain as it passes on its way to the Charles River. (See Appendix K for photo information.)

Buildings

Cabin. Remnants of a log cabin, including an intact stone chimney, are located on the east side of Wilson Mountain. Metal pipes that once carried utilities to the cabin are buried adjacent to the chimney. There is little information available about this resource, with local residents reporting that it may have been built by Boy Scouts.



These cabin remains are the only known remnants of a building in the reservation. (See Appendix K for photo information.)

Structures

There are no structures that are not associated with a historic landscape.

Objects

There are no objects that are not associated with a historic landscape.

4.4. RECREATION RESOURCES

Recreation is entirely trail-based; there are no recreation fields or facilities. The following recreation activities take place in Wilson Mountain:

- Dog walking, on leash
- Geocaching (5 caches as of December 2016)
- Hiking
- Nature study/Photography
- Running/jogging
- Snowshoeing

Dogs are often off-leash. An unnamed pond along the park's border with Northeastern University has become a locus for off-leash activities. Off-leash dogs are also commonly encountered on trails, as are bags of dog excrement.

In addition to recreational dog walking, there is also a high level of commercial dog walking. Multiple companies, each with several dogs, often use the

park at the same time. Some company owners have proactively contacted DCR rangers to obtain permits for commercial activities; none have been issued.

Mountain biking is not currently authorized at Wilson Mountain. Complex staff believe the extent of the trails system (i.e., less than four miles), steep topography, and frequent hazards along the trails (e.g., exposed tree roots) make it unsuitable for this use. Public comments received during the preparation of this RMP indicate that there is public interest in opening Wilson Mountain to mountain biking.

4.5. INFRASTRUCTURE

Property Boundary

Wilson Mountain is bounded on the west by Route 128/I-95; on the north by West and Common streets; on the south by Westfield Street or private residences along that street; and on the east by private land and the Dedham Campus of Northeastern University.

The boundary with Northeastern University has been surveyed and permanent bounds established. A row of ornamental trees were planted parallel to, and five feet within, this boundary. None of the reservation's other boundaries are marked.

The Dedham-Westwood Water District holds a permanent right of way for the road from their water tower to Westfield Street. (See Book 888, Pages 12 and 13 for deed; Plan # D0888-12.)

Buildings and Structures

There are no non-historic buildings. The only known non-historic structure is a 10-foot-long wooden trail bridge. (Table 4.5.1) This bridge, which crosses an unnamed stream in Whitcomb Woods, is part of the Dedham Trails network. It is associated with a connector trail between Whitcomb Woods' trails and the Dedham Parks and Recreation Complex at 269 Common Street. It is unclear if this bridge is within the park, partially within the park, or just outside the park. Trails data are unavailable to confirm its location relative to the property line.

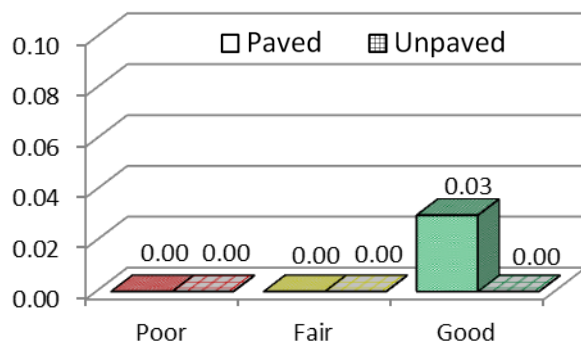
Table 4.5.1. Non-historic buildings and structures of Wilson Mountain Reservation.

Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
Trail bridge (1)	-	3	-	-

- a. Date of construction provided, when known.
- b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

Roads

A small road segment connects the parking lot to the park's trails system. Its length and condition are identified in Figure 4.5.1.

Figure 4.5.1. Condition and length (in miles) of roads at Wilson Mountain Reservation.

The park's forest roads are not included in these metrics; they are classified as trails and included elsewhere in this chapter. (See Trails, below.)

Parking

There are three public parking areas. (Table 4.5.2) The first is a small formal parking lot located within the park on the south side of Common Street, Dedham. The second is across from this lot, at the entrance to Whitcomb Woods. The third lot is a small pull-off located along the south shoulder of West Street.

Table 4.5.2. Number of public parking spaces, by location and type, at Wilson Mountain Reservation.

Location	HP	Restricted	Other	Total
Parking Lot	0	0	10	10
Roadside parking, Whitcomb Woods entrance	0	0	4	4
Roadside parking, West Street, Dedham	0	0	4	4
Total	0	0	0	18

The combined capacity of these parking areas is only 18 cars, which is insufficient for periods of peak visitation. When parking is unavailable in these areas, visitors park along the south shoulder of Common Street, adjacent to Northeastern University's track and field facilities.

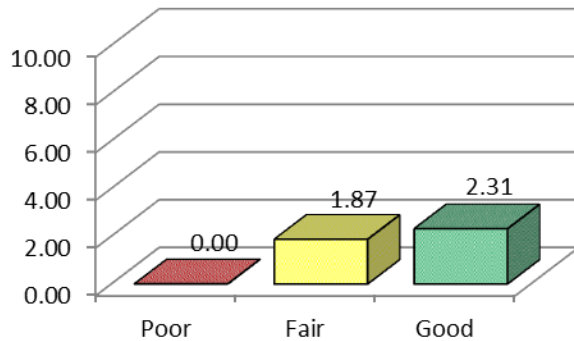


Parking lot at Wilson Mountain. (See Appendix K for photo information.)

Trails

There are 4.18 miles of official trails, including forest roads. The length of these trails, by condition, is depicted in Figure 4.5.2. These values are based on a combination of 2009 and 2014 data. There is no information on the extent or condition of unofficial trails.

Figure 4.5.2. Condition and length (in miles) of official trails at Wilson Mountain Reservation.



North of Common Street, the park's trails system connects with trails on DLT property. These in turn connect to public access trails within Newbridge on the Charles (i.e., Newbridge), a 160 acre Hebrew Senior Life retirement community located along the banks of the Charles River. Public access to the Newbridge trails, via DLT Property, was a condition of issuance of a Special Permit by the Dedham Planning Board (Book 24166, Page 31). Trails in Whitcomb Woods provide access to the Newbridge trails via DLT property, and also connect these trails to a broader Dedham trail system.

Kiosks and Signs

There are three map boards. One is located adjacent to the parking lot, at the start of Wilson Mountain Trail. The other two are located along Westfield Street, at its intersection with Border Path and with the Water Tower Trail.

The park's main identification sign is located at the entrance to the parking lot. A cantilevered Whitcomb Woods sign is located across the street, at the entrance to the Whitcomb Woods trails. An additional Wilson Mountain identification sign is located on the south shoulder of West Street, opposite the Exit 17 ramp from Route 128. It is visible to all traffic exiting the highway.



Kiosk at Wilson Mountain; note that postings in the kiosk and on a nearby sign address one of the park's major issues, the regulation of dogs. (See Appendix K for photo information.)

Iron Ranger

There is no iron ranger.

Memorials and Markers

A memorial stone with a metal marker is located between the trail and stream in Whitcomb Woods. It is dated 1998, and "in honor of the Whitcomb Family, Merle, John and Arthur." It is bordered on two sides by winged euonymus, an invasive plant.



This marker identifies the previous land owners and the state agency (MDC) and non-profits that protected Whitcomb Woods. (See Appendix K for photo information.)

4.6. INTERPRETATION

There is no regular interpretive programming.

4.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

Wilson Mountain is managed by personnel based at the Blue Hills Reservation. (See Table 2.7.1) There are no employees based at the park.

Partnerships and Volunteers

In 2008, a partnership between The Trustees of Reservations (The Trustees) and DCR was announced (<http://www.thetrustees.org/about-us/press-room/press-releases/pr-partnership-wilson-mountain-08.html>). Under the terms of a Memorandum of Agreement, The Trustees and DCR work jointly to increase stewardship of the property, with funding coming from The Trustees' Wilson Mountain-Whitcomb Property Stewardship Fund. An annual work plan is jointly developed, and implemented by The Trustees. Past projects include: hiring a land surveyor to mark boundaries; hiring the AMC to maintain trails; and conducting work days. An unsigned copy of the agreement was provided by The Trustees; a signed copy was not located during the preparation of this RMP.

Informal relationships exist with the DLT and Town of Dedham in regard to Wilson Mountain's role in a broader trails system.

There is no friends group for Wilson Mountain.

Safety

The Dedham Fire Department provides fire response and emergency services. Personnel from DCR's Fire Control District 4 provide supplemental assistance. The Dedham Police Department, Massachusetts State Police (Station H-2, Framingham), and Massachusetts Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

There are no trust funds.

Retained Revenue

There are no parking or entrance fees. Wilson Mountain does not generate or retain revenue.

Other Revenues

A gift from an anonymous donor was used to create The Trustees' Wilson Mountain-Whitcomb Property Stewardship Fund. This fund provides financial support for The Trustees' stewardship activities at Wilson Mountain.

4.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 4.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of Wilson Mountain. Legal agreements unique to the reservation are listed in Table 4.8.1.

Table 4.8.1. Key legal agreements for Wilson Mountain Reservation.

Party and Subject of Agreement	Type ^a	Expiration Date ^b
	A	N/A
Department of Conservation and Recreation and The Trustees of Reservations		
Memorandum of Agreement between Department of Conservation and Recreation, Commonwealth of Massachusetts and The Trustees of Reservations		

a. Agreement types include: C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

b. Year that agreement expires.

A Memorandum of Agreement between The Trustees and DCR is believed to have been signed in 2008. Because no signed copies were located during the preparation of this RMP, this could not be confirmed.

No previous management or guidance documents were identified for Wilson Mountain.

Annual Maintenance

Ongoing management practices are performed on an as needed basis. (Table 4.8.2.) Only lawn mowing is performed on a regular schedule.

Table 4.8.2. Annual cycle of management activities at Wilson Mountain Reservation.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Litter removal - Trails	AN	AN	AN	AN
Maintenance - Picnic sites, fences, etc.	AN	AN	AN	N/A
Mowing and trimming	AN	E7	AN	N/A
Pruning - Trees and shrubs	AN	AN	AN	AN

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

Natural Resources

Water Resources

There are no activities related to the management of water resources that are unique to this park.

Rare Species

There are no rare species monitoring or management activities.

Invasive Species

There are no park-specific management activities.

Vegetation

Field operations personnel from the Blue Hills cut the grass at Wilson Mountain on an as needed basis during the spring and fall, and approximately weekly during the growing season.

There are no ongoing forest inventory or management activities.

Wildlife

There is no stocking of fish or game species.

Cultural Resources

There are no cultural resource management activities unique to this park.

Recreation Resources

DCR rangers based at the Blue Hills maintain trails and trail markings on an as needed basis.

DCR regulations (302 CMR 12.11(3)ii) prohibit hunting and trapping on DCR properties in the Town of Dedham.

Mountain biking is prohibited by practice.

Infrastructure

Boundary

There are no boundary-related maintenance activities.

Buildings

There are no buildings to maintain.

Roads

The Dedham-Westwood Water District maintains the gravel road from Westfield Street to its water tower.

Parking Areas

The parking lot is maintained, on an as needed basis, by field operations personnel from the Blue Hills.

Trails

DCR rangers based at the Blue Hills provide minor trail repairs. Other employees based at the Blue Hills remove downed trees blocking trails and add crushed stone to Meadow Path on an as needed basis. In the past, The Trustees have funded an AMC trail crew at Wilson Mountain; this is not an ongoing activity.

No formal agreement for connections between DLT and DCR trails was located during the preparation of this RMP.

Kiosks and Signs

DCR rangers from the Blue Hills are responsible for updating the content of map boards.

4.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Wilson Mountain. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 4.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 4.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

- There are no Zone 1 areas.

Zone 2

- All portions of the park, with the exception of areas identified as Zone 3.

Zone 3

The following portions of Wilson Mountain are currently developed, appropriate for potential future development, or intensively used for recreation. They have been designated Zone 3.

- The existing parking lot and adjacent lawn.

Significant Feature Overlay

There is no Significant Feature Overlay.

Management Recommendations

Three priority management recommendations were developed for Wilson Mountain Reservation and associated properties. (Table 4.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

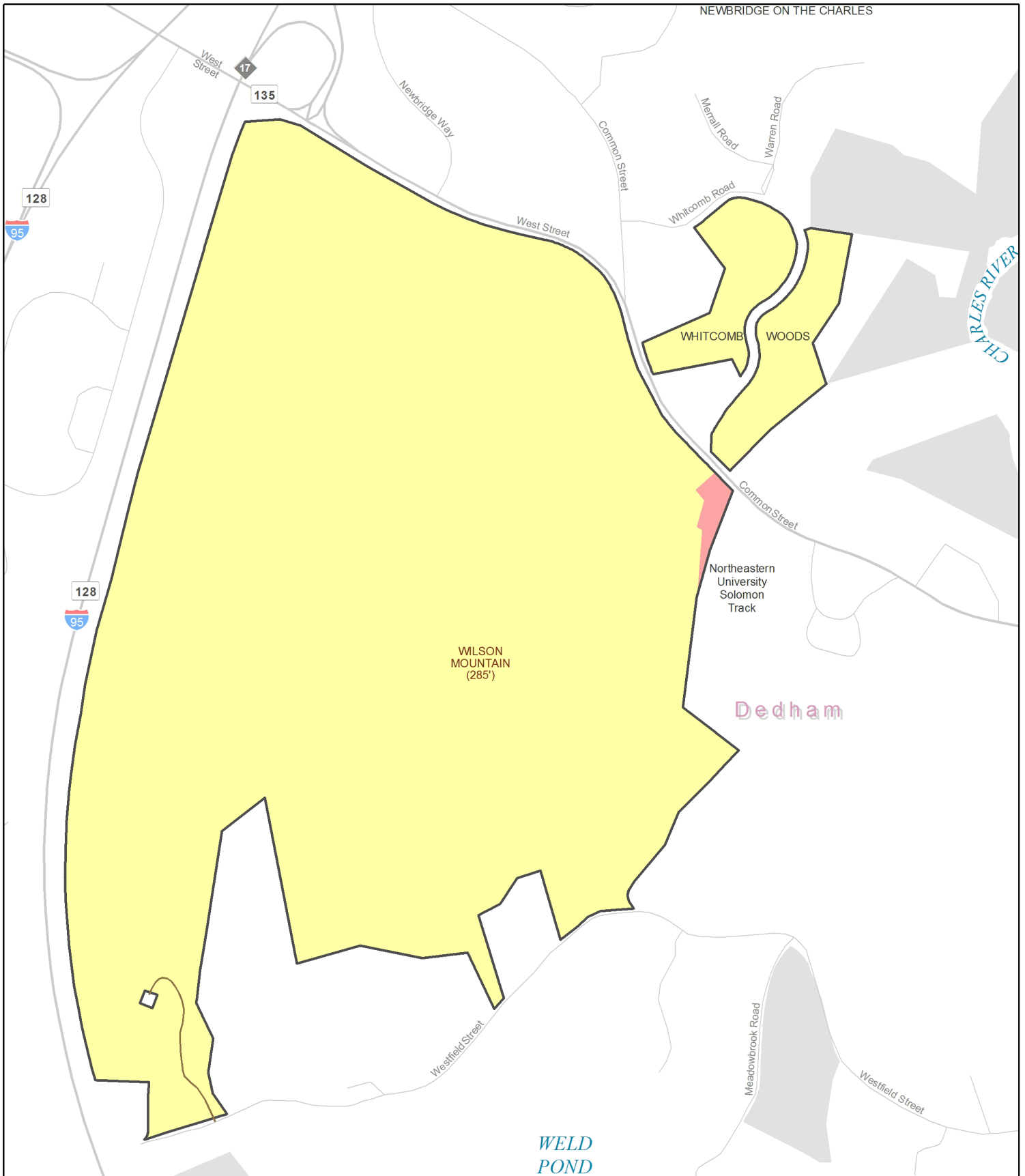
Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.

Table 4.9.1. Priority recommendations for Wilson Mountain Reservation.

Recommendation	Implementation^a
Actively promote awareness of, and compliance with, DCR regulation that require animals (e.g., dogs) to be “on a tether or leash no greater in length than 10 feet.” (302 CMR 12.13(2)).	B, R
Work with commercial pet walkers to obtain the required permit for their commercial activity at Wilson Mountain.	B, L, R
Meet with representatives of The Trustees of Reservations to clarify status of the 2008 Memorandum of Agreement and, if appropriate, develop a work plan for future stewardship activities.	R, V

- a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.



Wilson Mountain Reservation
 Other Legal Interest - DCR
 Other Protected Open Space

Stewardship Zones
 Zone 1
 Zone 2
 Zone 3

Wilson Mountain Reservation

Figure 4.9.1

Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS, 2016

1,000 Feet

4-13

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Wilson Mountain Reservation

Wilson Mountain Reservation is a forested park within Boston's Route 128 beltway. It is best known for its trails network, which consists of historic carriage roads and single track trails. Park visitors hike the reservation's steep, rocky hills to get glimpses of the Boston skyline. Wilson Mountain is a popular destination for people seeking a quiet walk in the woods, and for visitors to hike with their dogs.

Top Attractions

- Trails network
- Views of Boston skyline from hilltops

Friends Group

- None

Partners & Permittees

- Dedham Land Trust
- The Trustees
- Town of Dedham

Conservation Opportunities

- Educate recreational dog walkers about DCR regulations requiring that their pets must be on a tether or leash no greater in length than 10 feet.
- Enhance the visitor experience by applying recently developed DCR regulations that manage commercial dog walking.

Park Inventory

Date Established: 1994

Landscape Designation
Parkland

Management

This park is managed by staff from the Blue Hills Reservation.

Park Size (acres)

Total Area:	214.0
Wetlands:	13.4
Lakes and Ponds:	0.9

Rare Species

State-listed:	0
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Cultural Resources

Documented:	8
-------------	---

Miles of Roads

Paved:	0.0
Unpaved:	0.0

Miles of Trails

Official:	4.2
-----------	-----

DCR Recreation Facilities

This is a natural area, DCR does not maintain any constructed recreation facilities at this park.



The upper Neponset is a low velocity river with emergent marshes and seasonally flooded forests. (See Appendix K for photo information.)

SECTION 5. NEPONSET RIVER RESERVATION

5.1. INTRODUCTION

In 1893, the Metropolitan Park Commission (MPC), a predecessor to both the MDC and DCR, was established and given “the power to acquire, maintain and make available...open space for exercise and recreation.” (Chapter 407 of the Acts of 1893) The Commission’s initial efforts focused on establishing three types of reservations; beach, woodland, and river. Among the latter was the Neponset River Reservation.

Initial efforts to establish a Neponset River Reservation focused on the area between Milton Lower Falls and Boston Harbor. In 1899, protection efforts moved upriver with the MPC acquiring “a wide spreading tract of lowland known as the Fowl Meadows” between Paul’s Bridge, Milton and Green Lodge Street, Canton (MPC 1900). It took nearly a century before land protection efforts focused on riverfront lands upstream of Fowl Meadow.

In 1996 the MDC acquired the former Canton Airport; nearly 20 years of cleanup and restoration followed. In 2014, the property opened as the Lt Arthur E. Farnham, Jr. and TSgt Thomas M. Connolly, Jr. Memorial Park (Farnham & Connolly). It was named in honor of two friends who worked at

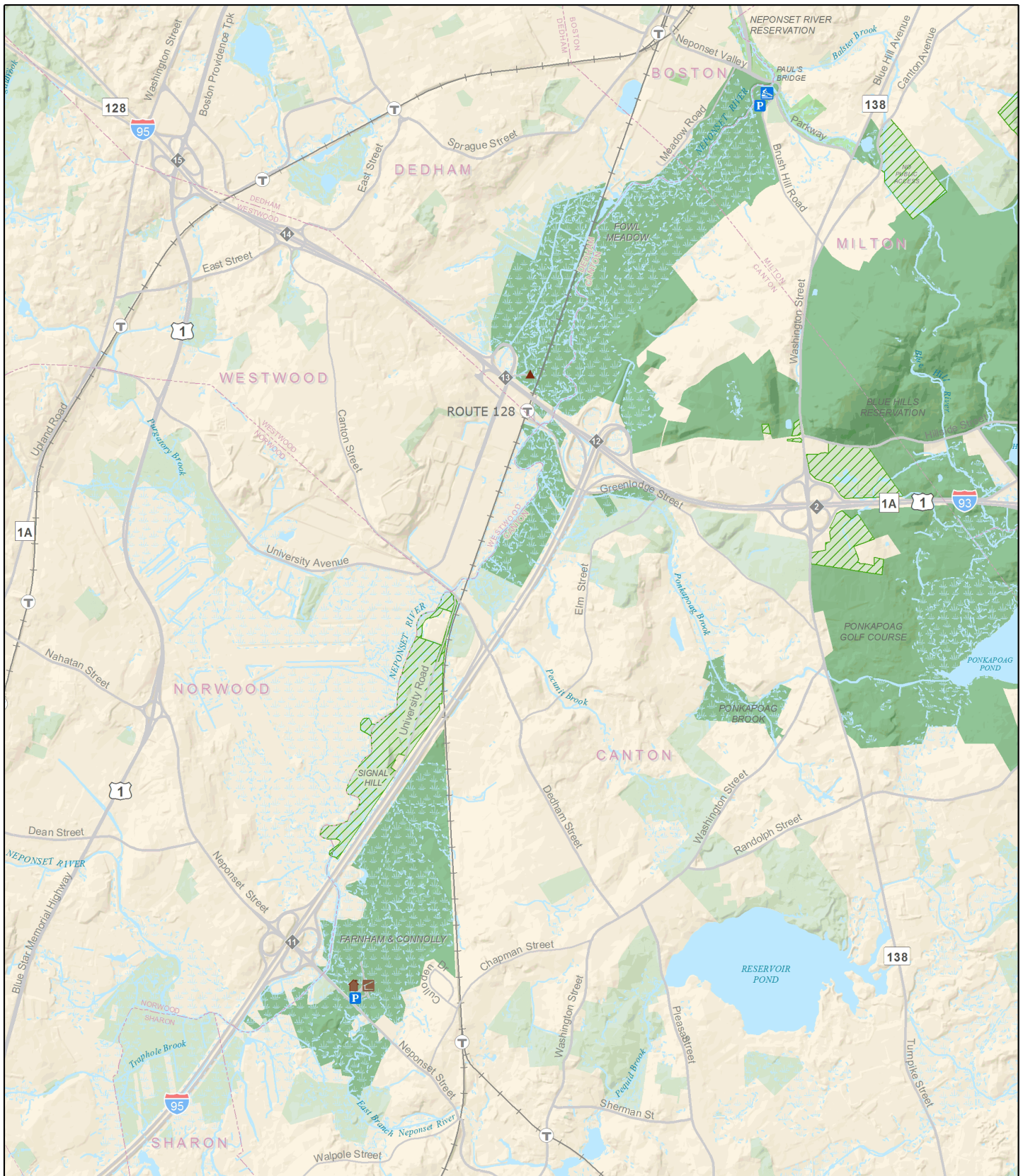
the Canton Airport in the 1930s, were shot down over Serbia in WWII, and were later airlifted to safety (Turner 2014).

Recent land protection efforts have focused on the river corridor between Fowl Meadow and Farnham & Connolly. Protection has been achieved through land purchases and the acquisition of a conservation restriction.

How you perceive the reservation depends on your vantage point. From the land, there is limited recreation infrastructure and the properties are separated by major roads. However, from the water, the reservation is a continuous recreation corridor through a largely vegetated stretch of the Neponset.

The terms *Neponset River Reservation* and *reservation* are used to collectively refer to Fowl Meadow, Farnham & Connolly, unnamed parcels between the two, and parcels south of Farnham & Connolly. (Figure 5.1.1) The portion of the Neponset River Reservation downstream of Paul’s Bridge is not covered in this RMP as it is not within the Blue Hills Complex. Parks north of Paul’s Bridge will be addressed in a future, separate RMP.

Neponset River Reservation



- Neponset River Reservation
- Blue Hills Complex Land
- Other DCR Land
- Other Protected Open Space
- DCR Legal Interest
- Boat Launch
- Portable Toilet
- Public Parking
- Pumphouse
- Shade Shelter

Neponset River Reservation
Figure 5.1.1

1,000
Feet



Geographic information provided by MassGIS and DCR GIS, 2016

The reservation's physical, political, and regulatory attributes are summarized in Table 5.1.1.

Table 5.1.1. Physical, political, and regulatory settings of Neponset River Reservation.

Setting	Name or Metric
Location:	Boston, Canton, Dedham, Norwood, Westwood
Area (acres)^a:	1,297.56
Perimeter (miles)^a:	18.10
Landscape Designation^b:	Parkland
Legislative Districts:	
House	6 th Norfolk 7 th Norfolk 11 th Norfolk 14 th Suffolk
Senate	Norfolk and Suffolk Norfolk, Bristol, and Plymouth
Regulatory Designations:	Priority Habitat Fowl Meadow and Ponkapoag Bog ACEC

- a. Calculated using a Geographic Information System (GIS).
b. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

Associated Properties. There are no associated properties. All properties addressed in this section are part of the Neponset River Reservation.

5.2. NATURAL RESOURCES

Physical Features

Within the reservation, the Neponset River lies in a relatively flat, north-south oriented river valley. Elevations range from approximately 45 feet at the river, to 98 feet at hilltops. Higher elevations are realized along the southeast borders of both Fowl Meadow and Farnham & Connolly.

Much of the river valley, and the flow of the river itself, has been modified through the construction of transportation corridors (e.g., roads, railroad line) and commercial and residential development. The construction of I-95 in the early 1960s included the physical relocation of portions of the river channel. Within the reservation, areas have been affected by these modifications and by other changes to the land. Drainage ditches were cut throughout Fowl Meadow, and Farnham & Connolly was ditched and filled for its historic use as an airport. These ditches and historic runways are visible in aerial images and

remain prominent landscape features. All portions of the reservation have been affected by the historic damming and industrialization of the river.

Water Resources

The reservation has abundant surface and ground water resources. They provide wildlife habitat, recreational opportunities, and drinking water. These resources are summarized in Table 5.2.1.

Table 5.2.1. Water resources of Neponset River Reservation.

Water Resource	Name or Metric
Watershed:	Neponset
Aquifer:	
High Yield (acres)	254.36
Medium Yield (acres)	679.11
Rivers and Streams (miles)	4.73
Vernal Pools	
Certified (#)	4
Potential (#)	47
Wetlands (acres)	998.18
Lakes and Ponds (acres)^a	28.32

- a. This category also includes open areas of major rivers, as identified in MassDEP Wetlands (1:12,000; MassGIS 2009).

The river segment between East Branch in Canton and Mother Brook in Boston has impaired water quality (DEP 2013). The entire portion of the reservation, within the Blue Hills Complex, is located in this segment. Sources of impairment include:

- debris/floatables/trash
- DDT
- *E. coli*
- fecal coliform
- foam/flocculants/scum/oil slicks
- oxygen (dissolved)
- PCB in fish tissues
- turbidity

Impairments documented within the reservation include *E. coli*, Total Phosphorous, Total Nitrogen, and Dissolved Oxygen (NEPRWA 2014). Due to the presence of PCBs and DDT in this stretch of the Neponset, a public health fish consumption advisory has been issued (HHS 2015). The Canton Board of Health has posted Public Health Fish Consumption

Advisory signs at major access points along the river, including the Fowl Meadow parking area.

Certified Vernal Pools are located in Fowl Meadow, as are most of the reservation's Potential Vernal Pools (PVPs). The remaining PVPs are located in unnamed portions of the reservation.

Because the reservation largely occurs within the flood plain of the Neponset River, much of the property is subject to flooding. (Table 5.2.2) This includes most of the trails at Fowl Meadow and the entire developed area at Farnham & Connolly. Due to its elevation (i.e. 49 feet above sea level at Paul's Bridge) and the presence of downstream dams, the reservation is not susceptible to storm-related inundation.

Table 5.2.2. Potential impacts of flooding to Neponset River Reservation.

Type of Impact	Acres	%
Flooding:		
100-year Storm	814.12	62.74
500-year Storm ^a	855.76	65.95

a. Cumulative value; includes 100-year storm impacts.

Aquifers beneath the reservation are an important source of drinking water for local communities. The Dedham-Westwood Water District has one groundwater well (White Lodge Well #5) in, and four additional wells (White Lodge Wells #1, 2, 3A, and 4A) near, Fowl Meadow. The Zone II wellhead protection area for these wells includes most of Fowl Meadow and several unnamed parcels of the reservation. The Town of Canton has four wells located just off the reservation, to the south of Neponset Street. The Zone II for these wells includes those portions of the reservation south of Neponset Street and most of Farnham & Connolly.

Rare Species

State-listed Species

Six state-listed species are known from the reservation. (Table 5.2.3) All require wetlands or floodplains for all or part of their life cycle. The least bittern had been previously documented in the reservation (NHESP 2007). However, there has been no documented nesting since 1990 and NHESP now considers its occurrence historic (French and Conlee 2016).

Table 5.2.3. State-listed species of Neponset River Reservation, as identified by the NHESP.^{a,b}

Species ^{a, b}	Type ^c	MESA ^d
Blanding's turtle	R	T
Blue-spotted salamander	A	SC
Britton's violet	P	T
Data-sensitive animal ^e	-	T
Long's bulrush	P	T
Pale green orchis	P	T

a. Presented alphabetically, by common name.

b. Fact sheets are available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.

c. Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.

d. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

e. In accordance with NHESP policy, organisms subject to collection are not identified in site-specific documents.

Priority Habitat

Much of the reservation (803.02 acres; 61.89%) has been designated Priority Habitat. Exceptions include Farnham & Connolly and portions of the reservation south of Neponset Street, Canton.

Vegetation

There is no comprehensive inventory of the reservation's plant life. However, general descriptions exist for the Fowl Meadow and Farnham & Connolly portions of the reservation.

Fowl Meadow's common plants include: red maple and swamp white oak in the canopy; highbush blueberry, buttonbush, and silky dogwood in areas with shrub cover; and royal fern, sensitive fern, Canada bluejoint, common bulrush, tussock sedge, jewelweed, and Joe Pye weed in the herb layer (NHESP 2007).

Common vegetation on Farnham & Connolly includes little bluestem and pitch pine in areas believed to have been disturbed due to highway and railroad construction, and a variable mix of oaks, quaking aspen, white pine, and gray birch in other upland areas (BSC Group 2009). Common wetland vegetation includes red maple, glossy buckthorn, silky dogwood, highbush blueberry, northern arrowwood, speckled alder, willows, sensitive fern,

skunk cabbage, and a variety of sedges and rushes. Additional information on these plants is provided in BSC Group (2009).

Extensive plantings were made at Farnham & Connolly as part of park restoration efforts. A variety of trees, shrubs, ferns, turf grasses, and other groundcovers were planted. For details see GEI Consultants et al. (2010).

Invasive Species

Six species of invasive plants have been observed. (Table 5.2.4) One is wetland-dependent (i.e., purple loosestrife); three others prosper in wet soils and floodplains (i.e., glossy buckthorn, common reed, and reed canary grass); and the other two may be found in both uplands and wetland edges.

Table 5.2.4. Known invasive plants of Neponset River Reservation.

Species ^a	Status ^b	Source ^c
Common reed	I	1
Glossy buckthorn	I	1, 2
Japanese knotweed	I	1
Mile-a-minute	I	3
Purple loosestrife	I	1, 2
Reed canary grass	L	1

- Presented alphabetically, by common name.
- Plants are classified as Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
- Information contained in this table was obtained from the following sources:
 - BSC (2009).
 - NHESP (2007)
 - Echandi (2009d).

Invasive plants have been identified as a threat to the persistence of populations of all three state-listed plants in Fowl Meadow (NHESP 2007).

Natural Communities

Only the Farnham and Connolly portion of the reservation has been surveyed for natural communities. BSC (2009) identified five community types; three Palustrine and two Terrestrial. (Table 5.2.5) Only one, Alluvial Red Maple Swamp, is considered a priority natural community.

Table 5.2.5. Known natural communities of Neponset River Reservation.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Alluvial Red Maple Swamp	P	S3	1
Cultural Grassland	T	N/A	1
Mixed Oak Forest	T	S5	1
Shallow Emergent Marsh	P	S4	1
Shrub Swamp	P	S5	1

- Classified according to Swain and Kearsley (2011).
- E = Estuarine, P = Palustrine, T = Terrestrial.
- The NHESP ranks communities from most rare (S1) to the most common (S5).
- Information contained in this table was obtained from the following sources:
 - BSC (2009).

NHESP identified six additional natural communities that potentially occur in Fowl Meadow (NHESP 2007:18). The occurrence of these community types has not yet been confirmed.

Forests

Only 246.20 acres (18.97%) is upland forest. These forests tend to occur in those portions of the reservation farthest from the Neponset River, such as along the eastern boundaries of Fowl Meadow and Farnham & Connolly. Forested wetlands are present along the margins of the Neponset River. Non-forested areas include emergent marshes, cultural grasslands, and parking lots.

Wildlife

Fowl Meadow is a birding “hotspot.” As of December, 2016, 161 species have been identified (eBird 2012). This includes waterfowl, marsh birds, common forest residents, and a variety of spring and fall migrants (e.g., Nashville warbler, orange-crowned warbler). There have been no systematic surveys of other wildlife taxa. A list of wildlife species likely to occur at Farnham & Connolly was included in BSC Group (2009). As of December, 2016, 113 species of birds had been confirmed at Farnham & Connolly (eBird 2012).

5.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic

landscapes, buildings, structures, and objects. An overview of significant events in the history of the portion of the Neponset River Reservation upstream of Paul's Bridge is presented in Table 5.3.1. Cultural Resources are identified in Table 5.3.2.

Nine archaeological resources are listed by the MHC; one is also listed in the National Register. Because the MHC does not make information on archaeological resources available to the general public, most resources are not included in Table 5.3.2. Only the resource listed in the National Register is identified.

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

The Neponset River, with its many tributaries and estuary, situated on a well-watered coastal plain, provided year-round natural resources for procurement. (See Appendix F for additional information on the relationship between the region's rivers and its cultural history.) There are currently over one hundred recorded sites on the lower Neponset River and around the margins of Fowl Meadow. These sites date from the Archaic Period through the Contact Period. The Neponset River Reservation has a high archaeological potential for pre-Contact sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

No historic archaeological resources are recorded on the MHC inventory for the Neponset River Reservation. Background research will determine if the reservation is sensitive for locating historic period archaeological sites.

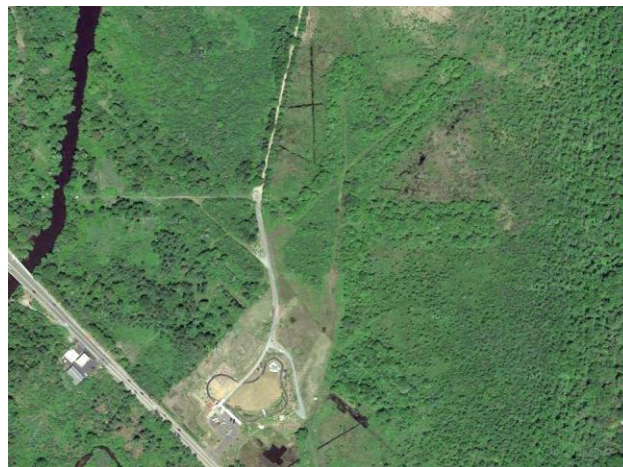
HISTORIC RESOURCES

Historic resources are nearly absent; occurring only at Farnham & Connolly. Familiar resources such as the Neponset Valley Parkway and Paul's Bridge abut, but are not part of, the Blue Hills Complex.

Historic Landscapes

Canton Airport. The Massachusetts Air Terminal and Arena (i.e., Canton Airport) was established in

1930. Much of it was situated within the floodplain of the Neponset River. In January of 1931, four runways were created by using a steam shovel to compact gravel on top of organic wetland soils (Canton Historical Society 2010, DCR 2010*b*). This gravel created a solid runway surface and largely elevated the runways above the average flood level. "Mosquito ditches were dug throughout the wetlands on site, most likely during the Great Depression" (DCR 2010*b*). The airport's buildings were constructed on higher and drier ground along Neponset Street. The airport closed in 1954, and the buildings used for industrial purposes. In 1990, PCBs and petroleum hydrocarbons were discovered in soils samples and the site was placed on the Mass DEP list of oil and hazardous material sites. During the cleanup process the airport's buildings were demolished and removed. Only remnants of the gravel runways, their presence indicated by differences in vegetation, and mosquito ditches remain.



The former Canton Airport's runways are visible in the center of this aerial image; mosquito ditches are visible to the left of the runways. (See Appendix K for photo information.)

Buildings

There are no historic buildings.

Structures

There are no historic structures.

Objects

There are no historic objects.

Table 5.3.1. Significant events in the history of Neponset River Reservation.

Year(s)	Events
1899	The MPC acquires the “Fowl Meadows” through land donation and purchases.
1990	Former Canton Airport is placed on the DEP sites list due to concentrations of PCBs in the soil.
1992	Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern (ACEC) is designated; both Fowl Meadow and the former Canton Airport are included.
1995–1996	Environmental Site Assessment of the Canton Airport identifies petroleum hydrocarbon and PCB contamination in groundwater and soil samples taken near the former hangars (Lord Associates 1996).
1996	MDC acquires the former Canton Airport.
2001	MDC and DEP enter into an Administrative Consent Order for the investigation and cleanup of the former Canton Airport.
2003	The MDC acquires a Conservation Restriction on the 126 acre Bates property in Canton and Norwood, now The Trustees of Reservations’ Signal Hill Preserve.
2005–2006	Buildings demolished and debris removed from the former Canton Airport.
2011	Two underground storage tanks are discovered and removed from the former Canton Airport.
2013	6.75 acres added to the former Canton Airport.
2014	Lt Arthur E. Farnham, Jr. and TSgt Thomas M. Connolly, Jr. Memorial Park opens at the former Canton Airport.

Table 5.3.2. Cultural resources of Neponset River Reservation.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Fowl Meadow								
Green Hill Site (National Register)	AR	-	-	H	-	-	19.NF.43	1
Farnham & Connolly								
Canton Airport Landscape	LA	1931	-	L	-	-	-	2, 3
Runways	ST	1931	-	L	-	-	-	2, 3
Mosquito ditches	ST	1931	-	L	-	-	-	2, 3

- Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- Date of construction provided, when known.
- Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- Integrity is a relative assessment of the condition of a resource’s retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.
- The following guidance is offered for the ongoing maintenance of these cultural resources:
 - Refer to Archaeological Features BMP (DCR n.d.k).
 - Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).
 - Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).

5.4. RECREATION RESOURCES

The following recreation activities take place in the Neponset River Reservation:

- Bicycling, mountain
- Canoeing/Kayaking
- Dog walking, on leash
- Fishing
- Geocaching (1 cache as of December 2016)
- Hiking
- Hunting (deer only; Fowl Meadow only)
- Nature study/Photography
- Picnicking
- Running/Jogging
- Skiing, cross-country

The most popular activities are trail-based, and associated with upland areas adjacent to the river. Typical trail activities, such as hiking and mountain biking, take place at Fowl Meadow. Trails on this property are an extension of those in the Blue Hills, and recreationists commonly travel between properties.

The reservation's only formal recreation facility is located at Farnham & Connolly. This facility, which opened in 2014, includes an accessible loop trail, two scenic overlooks, and a shade structure. There are no picnic tables. Use levels are unknown.



Part of the developed recreation facility at Farnham & Connolly. (See Appendix K for photo information.)

Additional recreation, including fishing, canoeing, and kayaking takes place on and along the river. The Fowl Meadow parking lot near Paul's Bridge

provides access for these activities. River access for cartop boats is also available from Green Lodge Street, Canton. A formal canoe launch is located off the reservation, at The Trustees' Signal Hill property on University Road, Canton; canoe rentals are seasonally available at this location.

In addition to recreational dog walking, there is also a high level of commercial dog walking, especially in the area of Paul's Bridge and Burma Road. Multiple companies, each with several dogs, often use the park at the same time.

5.5. INFRASTRUCTURE

Property Boundary

The reservation stretches from the Neponset Valley Parkway in the north, to wetlands near Neponset Street, Canton, to the south. Its parcels are typically located along one or both banks of the Neponset River, but a few are not. The park's boundaries are not posted. In some areas, recognizable features such as the Neponset River and roads form part of the boundary, but in most areas boundaries are indistinguishable on the ground. Questions exist about the accuracy of some mapped boundaries; this is especially true along the Canton-Norwood line.

Likely encroachments were noted at Farnham & Connolly, along its border with residences on Culloden Drive, Canton. An unnamed dirt road leads from Culloden Drive to MBTA commuter rail tracks; it is unclear if the MBTA has an easement or deeded right to access their property through the park. There is no gate to regulate vehicle access.

In 1988, the Commonwealth acquired a 4.271 acre parcel in Fowl Meadow, to the west of Brush Hill Road and north of Hemenway Drive. With this acquisition the Commonwealth acquired the deeded right to use Hemenway Drive "for all street purposes." The sellers reserved the right for themselves and their son to "enter upon said parcel...for the purpose of cutting, in accordance with good forestry practices, and removing firewood for personal use" (Book 8200, Page 59). This right is not assignable or inheritable. An additional reserved right, "for the purpose of disposing leaves, brush, cuttings and/or other natural organic matter" persisted only as long as the selling family resided on Green Street. It has since been extinguished.

Easements. Pipes associated with the New Neponset Valley Relief Sewer run the entire length of both Fowl Meadow and Farnham & Connolly. They also pass through the portion of the reservation near Green Lodge Street, Canton. The MWRA, which manages the sewer system and its associated Rights of Way, holds permanent easements on these pipelines in Fowl Meadow and at Green Lodge Street. (Chapter 422 of the Acts of 1994)

There are four sewer easements at Farnham & Connolly. Two for the MWRA's New Neponset Valley Relief Sewer; one for the Town of Canton; and one for Draper Industries (Crosby-Schlessinger-Smallridge et al. 2010).

The Dedham-Westwood Water District holds a permanent easement on the portion of Fowl Meadow, Dedham, in which White Lodge Well Number 5 is located. (Chapter 526 of the Acts of 1992)

Buildings and Structures

Non-historic buildings and structures are associated with the Farnham & Connolly formal recreation facility, MWRA sewer lines, or trails at Fowl Meadow. (Table 5.5.1)



Shade shelter at Farnham & Connolly. (See Appendix K for photo information.)

Table 5.5.1. Non-historic buildings and structures of Neponset River Reservation.

Location and Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
Fowl Meadow				
Boardwalk (1) ^e	-	3	-	-
Farnham & Connolly				
Shade structure	2014	1	-	-
Portable toilet enclosure	2015	1	-	-
Wetland deck and overlook (2)	2014	1	-	-
Bridge	2014	1	-	-
MWRA concrete vaults (3) ^f	1990s	2	-	E, S
MWRA manhole access (multiple) ^f	-	-	-	S
MWRA bridge (for pipeline) ^f	-	-	-	-
Unnamed parcels south of Green Lodge Street, Canton				
MWRA manhole access (3) ^f	2011	1	-	S

a. Date of construction provided, when known.

b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

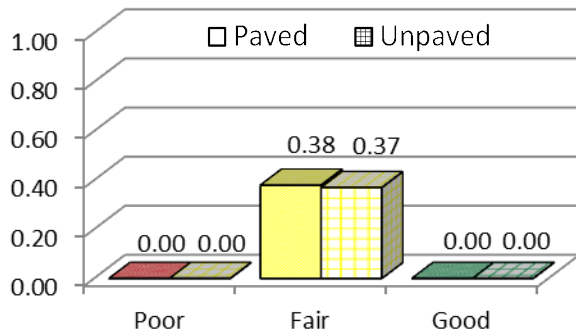
e. Based on preliminary 2015 data.

f. Infrastructure located on DCR property, but not owned or controlled by the DCR. Its condition is not assessed.

Roads

There are approximately 0.75 miles of roads. Their conditions and lengths are summarized, by surface type, in Figure 5.5.1. Forest roads used primarily as trails are not included in this table, but are included in trails data.

Figure 5.5.1. Condition and length (in miles) of roads at Neponset River Reservation.



Paved roads are solely associated with the “stub”, an incomplete northward extension of I-95 into Fowl Meadow. Meadow Road, a paved municipal road that passes through Fowl Meadow is not included in Figure 5.5.1.

Also excluded from the roads metrics is the Dedham-Westwood Water District’s 0.10-mile-long access road from University Avenue, Westwood to their water supply well in Fowl Meadow. This road was not constructed by, nor is it maintained by, the DCR. In addition, it is not used for park purposes.

Parking

Public parking is available at the north end of Fowl Meadow and the South End of Farnham & Connolly. (Table 5.5.2)

Table 5.5.2. Number of public parking spaces, by location and type, at Neponset River Reservation.

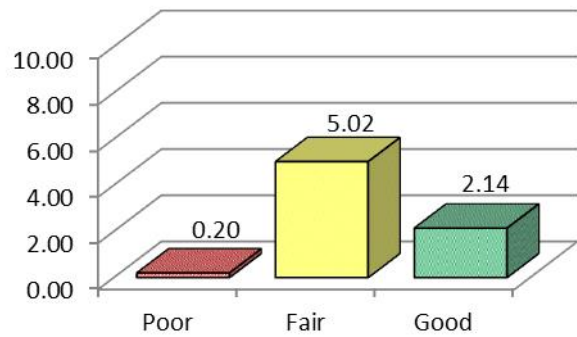
Location	HP	Restricted	Other	Total
Fowl Meadow				
Brush Hill Road, Milton	0	0	7	7
Farnham and Connolly	2	0	27	29
Total	2	0	34	36

Trails

The reservation’s parcels are isolated from each other by both the Neponset River and public roads. As a result, there is no reservation-wide trail system. However, the Fowl Meadow and Farnham & Connolly parcels each have their own trail systems. Fowl Meadow’s trails are located east of the river, and are contiguous with the Blue Hills Reservation’s trails network.

There are 7.36 miles of official trails in the reservation. (Figure 5.5.2) This includes trails created for recreation purposes, trails atop sewer line easements, and forest roads. A 0.20 mile paved, accessible interpretive loop trail was opened in 2015 at Farnham & Connolly. Along this trail are ornate landscape plantings, a pavilion, wetland observation decks, and a series of interpretive panels. In addition to the official trails, there is an additional 0.84 miles of unauthorized user-created trails.

Figure 5.5.2. Condition and length (in miles) of official trails at Neponset River Reservation.





Beneath Burma Road, the main trail through Fowl Meadow, is an MWRA sewer line. Similar sewer lines and trails pass through Farnham & Connolly and the unnamed parcels along Green Street. (See Appendix K for photo information.)

Two long-distance trails, the Bay Circuit Trail (<http://baycircuit.org/wordpress/>) and the Warner Trail (<http://warnertrail.org/>), are located approximately 3.25 miles south of the reservation. Wetlands, the east branch of the Neponset River, and a high degree of residential development make potential connections to these trails difficult.

Kiosks and Signs

A kiosk is located adjacent to the Fowl Meadow parking lot. There is no kiosk at Farnham & Connolly.

Iron Ranger

There is no iron ranger.

Memorials and Markers

A granite marker, bearing the carved inscription “Fowl Meadow” is located at the trail head adjacent to the parking lot. There are no known memorials at any of the properties.

5.6. INTERPRETATION

There are no ongoing interpretive programs.

Eleven interpretive panels have been incorporated into the design of Farnham & Connolly; five along the main path, five at the shade shelter, and one along the road to the north of the shade shelter. The subjects of these panels are:

- Farnham and Connolly Memorial Park (2 panels)

- Ghost walls
- Red maple: Red maple swamp
- Plants: Native plants
- Watershed: Fowl Meadow
- Wetlands: Vital wetlands
- Aviation: A golden age
- Airfield: An airfield for Canton
- Community: A sense of place
- Heliplane: A plane in every garage
- Airport: Time and again
- Diversity: Beautiful mosaic



Example of interpretive panel at Farnham & Connolly. (See Appendix K for photo information.)

5.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

The Neponset River Reservation, within the Blue Hills Complex, is managed by field operations team members based at the Blue Hills Reservation. There are no employees on-site.

Partnerships and Volunteers

The Friends of the Blue Hills’ area of interest includes the Fowl Meadow portion of the Neponset River Reservation.

The mission of the Neponset River Watershed Association (NepRWA) is to protect the water, wildlife, and land of the Neponset River and Watershed. As opportunities become available, NepRWA and the DCR work together to conserve

and enhance resources on DCR properties within the watershed.

The New England Wildflower Society periodically provides staff and volunteers to monitor populations of rare plants at Fowl Meadow.

Public Safety

The Massachusetts State Police, based at Station H-7 in the Blue Hills Reservation, have primary law enforcement authority over Fowl Meadow. Massachusetts State Police based at Station H-3, Foxborough, have primary law enforcement authority over the other sections of the reservation. Massachusetts Environmental Police (Regions C-7 and M-2) and local police provide additional enforcement. Fire departments from Boston, Canton, Dedham, Milton, and Westwood provide fire suppression and emergency response. Personnel from DCR's Fire Control District 4, based at F. G. Hills, provide assistance in fighting fires in the reservation.

Funding

Conservation Trust Fund

There are no reservation-specific funds.

Retained Revenue

There are no parking or admission fees. The reservation does not generate retained revenues.

5.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 5.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of the Neponset River Reservation within the Blue Hills Complex. Legal agreements unique to the reservation are listed in Table 5.8.1.

Table 5.8.1. Key legal agreements for Neponset River Reservation.

Party and Subject of Agreement	Type^a	Expiration Date^b
Dedham-Westwood Water District Easement. <i>Authorized by Chapter 526 of the Acts of 1992.</i>	E	N/A
Massachusetts Water Resources Authority Easement <i>Authorized by Chapter 422 of the Acts of 1994.</i>	E	N/A

- Agreement types include: L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.
- Year agreement expires. The expiration date for permanent agreements is identified as N/A (Not Applicable).

Key management and guidance documents are identified in Table 5.8.2.

Table 5.8.2. Key management and guidance documents for Neponset River Reservation.

Author and Document	Year
ENSR International Fowl Meadow and Ponkapoag Bog ACEC: Area of Critical Environmental Concern resource management plan.	2002
Natural Heritage and Endangered Species Program Biodiversity of Blue Hills Reservation.	2007
Echandi, A. Rare and endangered species Habitat Management Plan; Neponset River Wetland and Fowl Meadow Management Unit; Blue Hills Reservation (Cumberland Farms to I-95; I-95 to Paul's Bridge).	2009 ^d

Annual Maintenance

Ongoing management practices typically follow a regular schedule. Common activities, and the desired frequency with which they occur, are identified in Table 5.8.3.

Table 5.8.3. Annual cycle of management activities at Neponset River Reservation.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Litter removal - Trails	AN	AN	AN	N/A
Maintenance - Picnic sites, fences, etc.	AN	AN	AN	N/A
Mowing and trimming	AN	E7	AN	N/A
Pruning - Trees and shrubs	AN	AN	AN	AN
Sweeping - Walkways	AN	AN	AN	AN
Weeding - Flower beds and grassy areas	N/A	AN	N/A	N/A
Weeding - Paved areas	N/A	N/A	N/A	N/A

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

Blue Hills Complex field operations personnel are responsible for performing all of the activities listed in Table 5.8.3 within the portion of the reservation in their complex. The Neponset Valley Parkway is managed by personnel from the Stony Brook Complex. Field operations personnel from the Castle Island Complex are responsible for managing the Neponset River Reservation downstream of the Blue Hills Parkway.

Natural Resources

Water Resources

The MWRA is responsible for the maintenance and operation of the New Neponset Valley Relief Sewer.

The Dedham-Westwood Water District is responsible for the operation of their well in Fowl Meadow.

Rare Species

In 2007 the NHESP assessed the biodiversity of the Blue Hills Reservation and Fowl Meadow, and offered specific management recommendations to protect state-listed species (NHESP 2007). Recommendations for the “Neponset River Wetland and Fowl River Management Unit” include:

- Develop rare species survey and monitoring program
- Conduct active habitat management for rare plants

- Develop exotic invasive plant monitoring and control program

Shortly after the biodiversity assessment was completed, a rare and endangered species Habitat Management Plan (HMP) was developed for Fowl Meadow and the portion of the reservation located between Dedham Street, Canton and Route 128. This HMP specifies active habitat management practices along the MWRA sewer easement in order to protect rare species, enhance rare species habitat, and maintain vegetation along the easement. This HMP was approved by the NHESP in 2009 (French 2009c). It remains the guidance document for rare species management at Fowl Meadow and is to be “reviewed on an annual basis during the fall season.”

Volunteers and staff from the New England Wildflower Society have traditionally surveyed for populations of Britton’s Violet at Fowl Meadow.

Invasive Species

Between 2008 and 2012, *Galerucella* beetles were annually released in the northern section of Fowl Meadow in an effort to control purple loosestrife. This project was a joint effort of DCR, NEPRWA, and the Wetlands Restoration Program of the Massachusetts Office of Coastal Zone Management. Because these beetles reproduce in the wild, it is likely that the species is still present in Fowl Meadow.

Management of mile-a-minute vine has included the application of herbicide to populations along Burma Road (Echandi 2009d); the hand pulling of plants along Green Lodge Street, Canton; and the release of mile-a-minute weevils along Green Lodge Street in 2009.

Vegetation

DCR rangers and Blue Hills field operations staff remove hazard and downed (i.e., fallen) trees from trails at Fowl Meadow. They also remove downed trees and limbs preventing the passage of canoes and kayaks along the Neponset River within Fowl Meadow. Volunteers may help prune vegetation along trails. Field operations team personnel mow Burma Road, within Fowl Meadow, annually in October.

The MWRA and the Dedham-Westwood Water District are responsible for managing vegetation within their respective easements.

Wildlife

Deer hunting was implemented in the Fowl Meadow portion of the reservation in 2016, as part of the expanded Blue Hills deer hunt (DCR and MassWildlife 2016). Portions of Fowl Meadow were restricted to shotgun hunting only, other sections were restricted to bow hunting only, and the remaining sections were closed to hunting. There is presently no legal hunting at Farnham & Connolly or the unnamed portions of the reservation.

Cultural Resources

There are no activities unique to this park.

Recreation Resources

DCR's Parks and Recreation Rules prohibit hunting and trapping throughout most of the reservation, unless authorized by the Commissioner or specifically authorized by law (302 CMR 12.11(3) ii). Under these rules, hunting is not prohibited in the Norwood portion of the reservation.

The use of watercraft in the reservation is specifically regulated by DCR's Parks and Recreation Rules (302 CMR 12:00). Only cartop boats may be launched from Green Lodge Street, Canton, and from the Paul's Bridge area adjacent to the Fowl Meadow parking lot.

Infrastructure

Buildings

There are no activities unique to this park.

Roads

The MWRA is responsible for maintaining the roads on its easements.

The Dedham-Westwood Water District is responsible for maintaining its access road in Fowl Meadow.

The Massachusetts Department of Transportation (MassDOT) is improving the interchange at I-95, I-93, and University Avenue. As part of this project, the current I-93/I-95 southbound ramp will be relocated, the paved road segment extending into Fowl Meadow (i.e., "the stub") will be removed, the current MassDOT salt shed will be removed, wetlands will be replicated, and new trails will be created. It is anticipated that over 0.5 miles of paved

roads will be removed from Fowl Meadow by this project. Road designs are completed; trail designs are being finalized.

Parking Areas

There are no management activities unique to this park.

Trails

Route I-95/I-93 improvements will result in changes to the mileage and locations of trails in Fowl Meadow, and the addition of two scenic overlooks. A connection is planned between the Route 128 train station and existing Fowl Meadow trails. This requires a pedestrian path under I-95 and a bridge over the Neponset River.

Kiosks and Signs

Park rangers based at the Blue Hills Reservation are responsible for updating the content of the kiosk at the Fowl Meadow parking lot.

5.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of the Neponset River Reservation. Applied Land Stewardship Zoning recommendations provide general guidance for managing the reservation. Future activities and projects should be checked against the zoning map (Figure 5.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 5.9.1)

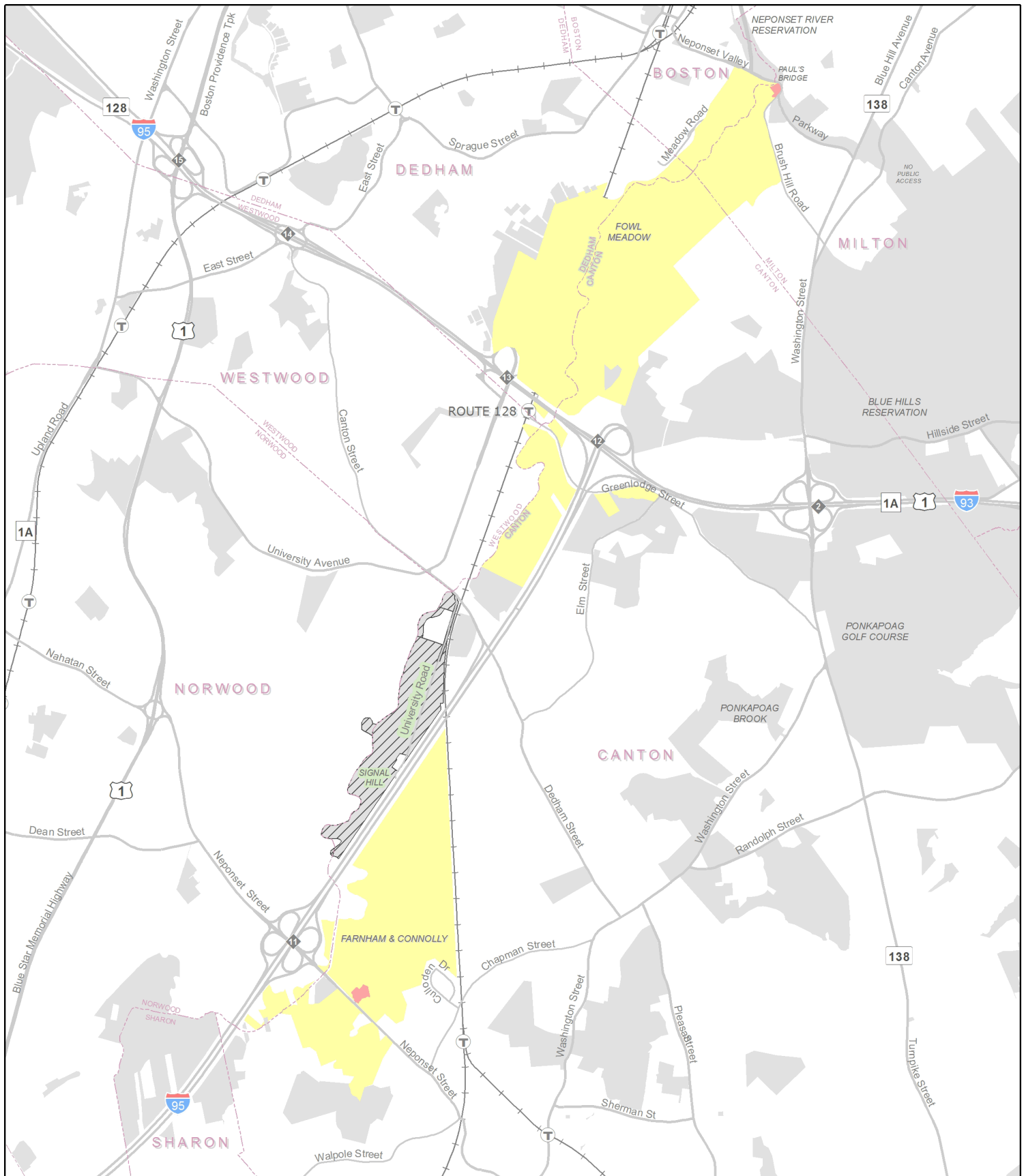
The following Land Stewardship Zoning is recommended.

Zone 1

- There are no Zone 1 areas in the portion of the Neponset River Reservation within the Blue Hills Complex.

Zone 2

- All areas not specifically designated as Zone 3.



- | | |
|--|---|
| <ul style="list-style-type: none"> Neponset River Reservation Other Legal Interest - DCR Other Protected Open Space | Land Stewardship Zoning <ul style="list-style-type: none"> Zone 1 Zone 2 Zone 3 |
|--|---|

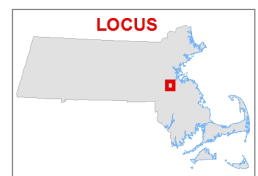
Neponset River Reservation

Figure 5.9.1

Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS, 2016

1,000
Feet



Zone 3

The following portions of Neponset River Reservation are currently developed, appropriate for potential future development, or intensively used for recreation. They have been designated Zone 3.

- The parking area and associated managed turf at the intersection of Brush Hill Road and the Neponset Valley Parkway, Milton.
- An approximately 3.4 acre portion of Farnham & Connolly along Neponset Street, Canton. This area includes all structures, the parking lot, walkways and other developed features associated with the 2012–2014 redevelopment of the property. It does not include adjacent reconstructed wetlands.

Significant Feature Overlay

There are no Significant Feature Overlays.

Management Recommendations

Seven priority management recommendations were developed for the Neponset River Reservation. (Table 5.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

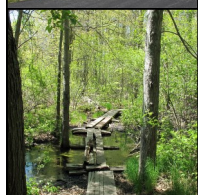
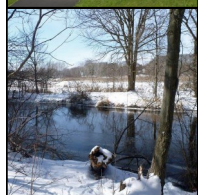
Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.

Table 5.9.1. Priority recommendations for Neponset River Reservation.

Recommendation	Implementation^a
Conduct annual reviews of the Rare and Endangered Species Habitat Management Plan for Fowl Meadow; update as needed and implement.	P, R
Conduct active habitat management for rare plants at Fowl Meadow, as recommended in NHESP (2007).	P, R
Work with commercial pet walkers to obtain the required permit for their commercial activity at Fowl Meadow.	B, L, R
GPS official trails, update maps, and make information publically available on the DCR web page.	B, P, X
Survey boundary of Farnham & Connolly along Culloden Drive, Canton to determine if encroachments have occurred; resolve any encroachments with abutters.	F, L
Determine if the MBTA has a legal right to cross Farnham & Connolly to access their property from Culloden Drive.	L, P
Work with MBTA to gate northern spur of Culloden Drive, Canton, to stop illegal vehicle entry into park.	R

- a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.



Neponset River Reservation

The portion of the Neponset River Reservation upstream of Paul's Bridge falls within the Blue Hills Complex. This includes Fowl Meadow, the Lt Arthur E. Farnham, Jr. and TSgt Thomas M. Connolly, Jr. Memorial Park (Farnham & Connolly), and several unnamed parcels. The reservation provides access to the Neponset River for fishing, picnicking, and the launching of car-top boats. These properties protect freshwater marshes, forested wetlands, and uplands along the river. Canoeists and kayakers along this stretch of the Neponset get to experience calm waters flowing past largely undeveloped riverfronts, all within metropolitan Boston.

The reservation's only formal recreation area is located at Farnham & Connolly. It includes an accessible loop trail, two scenic overlooks, and a shade structure. This facility celebrates the park's natural history as well as its aviation history.

Top Attractions

- Farnham & Connolly Memorial Park
- River access

Friends Group

- Friends of the Blue Hills
<http://www.friendsofthebluehills.org>

Partners & Permittees

- Neponset River Watershed Association
- The Trustees

Conservation Opportunities

- Enhance the visitor experience by applying recently developed DCR regulations that manage commercial dog walking.
- Improve rare plant habitat at Fowl Meadow through active management.
- Review and update the current Rare and Endangered Species Habitat Management Plan for Fowl Meadow.

Park Inventory

Date Established

Fowl Meadow:	1899
Farnham & Connolly:	2014

Landscape Designation

Parkland

Management

This park is managed by staff from the Blue Hills Reservation.

Park Size (acres)

Total Area:	1,297.6
Wetlands:	998.2
Lakes and Ponds:	28.3

Rare Species

State-listed:	6
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Cultural Resources

Documented:	8
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Miles of Roads

Paved:	0.0
Unpaved:	0.0

Miles of Trails

Official:	7.4
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DCR Recreation Facilities

Accessible Trail:	1
Boat Launch:	1
Picnic Areas:	1
Shade Shelters:	1



The familiar red buildings and landscaped entrance of F. Gilbert Hills State Forest. (See Appendix K for photo information.)

SECTION 6. F. GILBERT HILLS STATE FOREST

6.1. INTRODUCTION

F. Gilbert Hills State Forest (F. G. Hills) is located in the towns of Foxborough and Wrentham, near the intersection of Interstates 95 and 495. (Figure 6.1.1) It lies nearly equidistant between Boston (19 miles north) and Providence (17 miles south).

In 1914 the Massachusetts legislature established the State Forest Commission. Among the Commission’s powers was the ability to “acquire for the Commonwealth by purchase or otherwise, and to hold, woodland or land suitable for timber cultivation” (Chapter 720 of the Acts of 1914). This established the state forest system in the Commonwealth, and directed the State Forester to “re-forest and develop such lands.” With few exceptions (i.e., Myles Standish, Shawme, and Harold Parker state forests) early acquisitions were located west of Worcester.

In 1926, The Department of Conservation established Foxborough State Forest with an initial acquisition of 381 acres. Within a decade, it had expanded to over 800 acres. In 1969, the forest was renamed in honor of F. Gilbert Hills, a forester, surveyor, and cartographer who spent nearly 45

years in service to the Commonwealth and its forests.

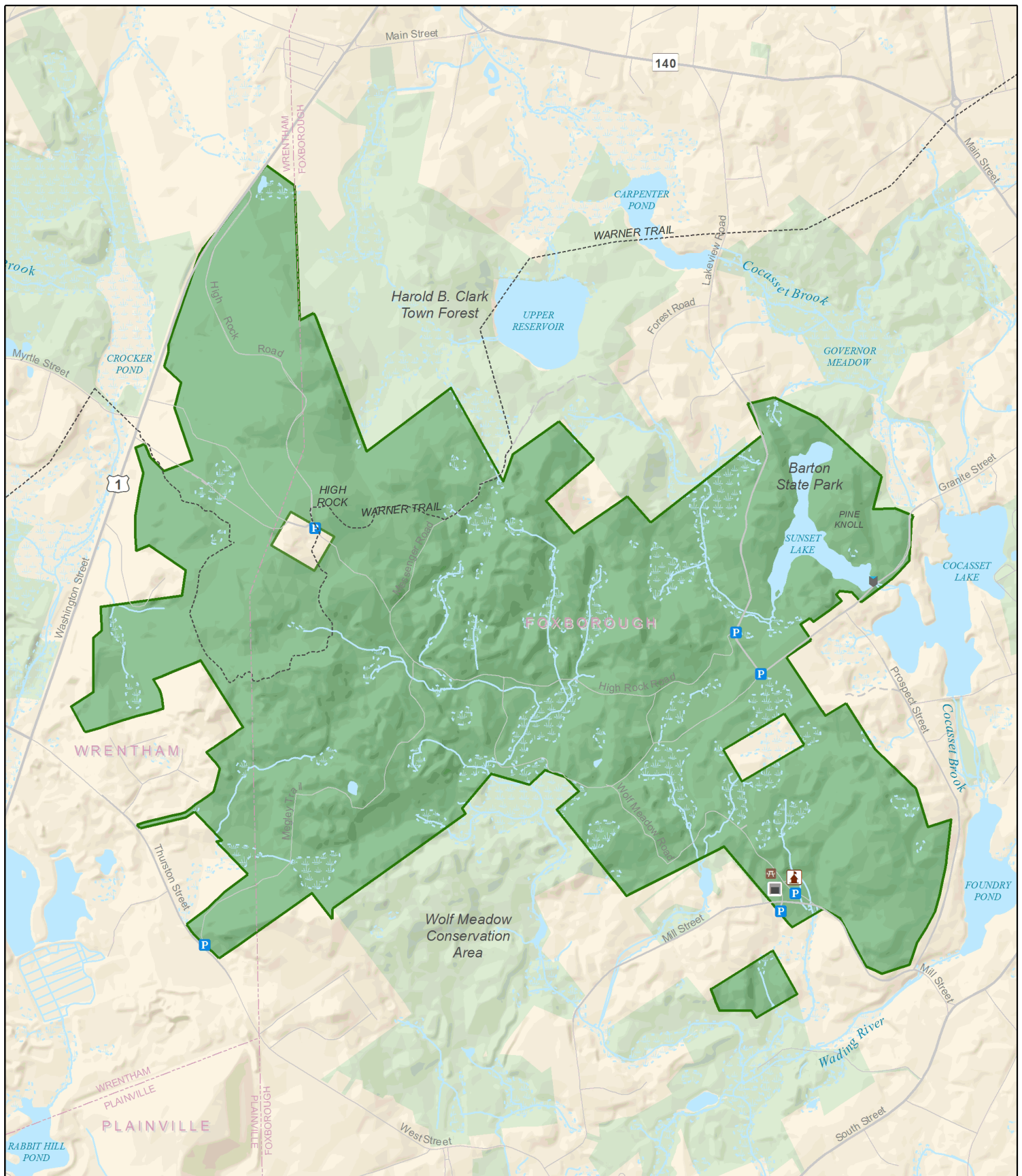
Today, F. G. Hills is best known for trail-based recreation including hiking, mountain biking, and the authorized use of Off-Highway Vehicles (OHVs). The forest’s physical, political, and regulatory attributes are summarized in Table 6.1.1.

Table 6.1.1. Physical, political, and regulatory settings of F. Gilbert Hills State Forest.

Setting	Name or Metric
Location:	Foxborough, Wrentham
Area (acres)^a:	1,036.64
Perimeter (miles)^a:	10.79
Landscape Designation^b:	Woodland
Legislative Districts:	
House	1 st Bristol 9 th Norfolk
Senate	Bristol and Norfolk Norfolk, Bristol, and Middlesex
Regulatory Designation:	Outstanding Resource Waters - Wading River

a. Calculated using a Geographic Information System (GIS).

b. For a summary of DCR’s landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.



<ul style="list-style-type: none"> F. Gilbert Hills State Forest Blue Hills Complex Land Other DCR Land Other Protected Open Space DCR Legal Interest Dam Headquarters 	<ul style="list-style-type: none"> Picnic Area P Public Parking Work Garage 	<h2 style="margin: 0;">F. Gilbert Hills State Forest</h2> <h3 style="margin: 0;">Figure 6.1.1</h3> <p style="margin: 0;">1,000 Feet</p> <p style="margin: 0; font-size: small;">Geographic information provided by MassGIS and DCR GIS, 2016</p>		<p style="margin: 0; font-size: small;">LOCUS</p>	<p style="margin: 0; font-size: small;">dcr Massachusetts</p>
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Associated Properties. One associated property is included in this section, it is:

- **Barton State Park.** This park within a park is located in the Foxborough portion of F. G. Hills. The land was acquired from the Barton family in 1985 and 1987, with the agreement that this addition to F. G. Hills be formally known as Barton State Park. It is situated north of Granite Street and east of Lakeview Road, and includes Sunset Lake (i.e., Parcel 2 of the Barton property). However, during the preparation of this RMP it could not be determined if Barton State Park refers to all, or just a portion, of this parcel. Its boundaries are not indicated on forest maps or on the ground. This property is significant for its cultural resources. (See Section 6.3.)

The Forest and Park Supervisor from F. G. Hills manages, as time and resources permit, several DCR properties, including F. Gilbert Hills State Forest, Bristol Blake State Reservation (Section 7), Franklin State Forest (Section 8), Wrentham State Forest (Section 9), Rehoboth State Forest (Section 10), West Bridgewater State Forest (Section 11), and Bridgewater State Forest (Section 12). They also oversee DCR's interests in Angle Tree Monument Reservation (Section 1).

6.2. NATURAL RESOURCES

Physical Features

Topography varies between towns, but is generally hilly. The highest elevation in the park, High Rock (416 feet), is located near the Foxborough-Wrentham town line. From here, elevation drops quickly to the west, reaching approximately 215 feet at Route 1 in Wrentham. The topography to the east, in Foxborough, is more complicated. (Figure 6.1.1) Although there is a general trend of decreasing elevation from west to east, it is not continuous. A series of north-south oriented hills are present in the center of the forest; a series of smaller, isolated hills occur to their east. The lowest elevation, approximately 196 feet, is realized in the Mill Street parking area. An isolated parcel located along the Cocasset River has a similar elevation. Elevations at Barton State Park range between approximately 255 and 295 feet, with small hills on each side of the lake.

Water Resources

There are numerous wetlands and streams. These and other water resources are summarized in Table 6.2.1.

Table 6.2.1. Water resources of F. Gilbert Hills State Forest.

Water Resource	Name or Metric
Watershed:	Taunton
Aquifer:	
Medium Yield (acres)	0.00
High Yield (acres)	0.00
Rivers and Streams (miles)	2.58
Vernal Pools	
Certified (#)	1
Potential (#)	9
Wetlands (acres)	79.32
Lakes and Ponds (acres)	15.37

Some of the forest's wetlands are isolated, but many are hydrologically connected via a network of streams. This network is located in Foxborough, and its waters flow into the Cocasset River after having passed through either the Wolf Meadow Conservation Area or Sunset Lake. A few of the forest's wetlands are hydrologically connected to the Harold B. Clark Town Forest to the north. Wetlands in Wrentham are either isolated, or connect via an intermittent stream to wetlands on the west side of Route 1.

The forest's one water body, Sunset Lake, was artificially created. Bathymetry and sediment depths were identified in Jason M. Cortell and Associates, Inc. (1985). The lake's waters are acidic, with little or no buffering capacity (Jason M. Cortell and Associates, Inc. 1985, Jobin 1990). There was insufficient information on water quality for the DEP to identify appropriate uses (DEP 2013). There is no Public Health Fish Consumption Advisory.



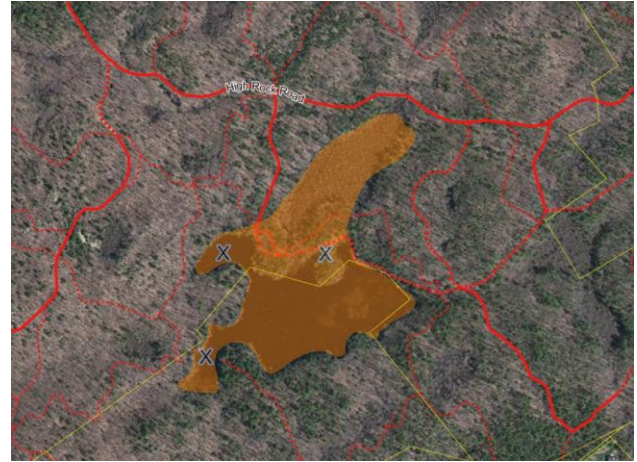
View of Sunset Lake, looking southward toward dam. (See Appendix K for photo information.)

Only a small portion of F. G. Hills is susceptible to flooding. (Table 6.2.2) The shores of Sunset Lake, including the Barton House's entire back yard, are predicted to be impacted by a 100-year flood. The Sunset Lake Dam is located within this flood zone. Two wetland areas are predicted to be impacted by 500-year floods. The first is south of Lake View Terrace, and the second is southeast of the intersection of High Rock and Wolf Meadow Roads. Although there is no critical infrastructure within the first wetland's flood zone, approximately 760 feet of forest road and 850 feet of trails are within the second wetland's flood zone.

Table 6.2.2. Potential impacts of flooding to F. Gilbert Hills State Forest.

Type of Impact	Acres	%
Flooding:		
100-year Storm	16.92	1.63
500-year Storm ^a	38.15	3.68

a. Cumulative value; includes 100-year storm impacts.



Predicted flooding in the High Rock Road, Wolf Meadow Road, and Rockwood Trail area. A 970-foot-long segment of the Healthy Heart Trail is located within the 500-year flood zone, which is represented in orange. Trails are shown in red, and the forest's boundary in yellow. (See Appendix K for photo information.)

Rare Species

State-listed Species

Only one state-listed species, the wood turtle, is known from F. G. Hills. (Table 6.2.3) It is associated with slow moving mid-sized streams with sandy bottoms and heavily vegetated banks, deciduous forests, fields, and riparian wetlands (NHESP 2015).

Table 6.2.3. State-listed species of F. Gilbert Hills State Forest, as identified by the NHESP.

Species ^{a, b}	Type ^c MESA ^d	
	R	SC
Wood turtle		

a. Presented alphabetically, by common name.

b. Fact sheets are available at:

<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.

c. Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.

d. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

Priority Habitat

There is functionally no Priority Habitat in the forest, but there is some mapped. The eastern boundary of Priority Habitat polygon PH 265 extends eastward across Route 1 and minimally overlaps the forest. This overlap is likely a function of the mapping process, and not an indicator of the ecological significance of this 0.35 acre portion of F. G. Hills.

Vegetation

There has been no floristic inventory; information on plants comes from ongoing forest monitoring efforts. (See Forests, below.) Preliminary information on the aquatic plants of Sunset Lake was presented in Jason M. Cortell and Associates, Inc. (1985).

Invasive Species

There are six known invasive plants as categorized by MIPAG (2005), but knowledge of the forest's invasive plants is incomplete. (Table 6.2.5) One additional invasive, common reed, is common along the shoulder of Route 1 and may be present within the forest.

Table 6.2.4. Known invasive plants of F. Gilbert Hills State Forest.

Species ^a	Status ^b	Source ^c
Black swallowwort	I	1
European buckthorn	I	2
Japanese knotweed	I	3
Oriental bittersweet	I	2
Variable water-milfoil	I	4
Winged Euonymus	I	2

- Presented alphabetically, by common name.
- Plants are classified as Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
- Information contained in this table was obtained from the following sources:
 - State Forests Advisory Council (2012)
 - Observed by RMP planner.
 - Ashton (2015)
 - Jason M. Cortell and Associates, Inc. (1985)

Forestry records from 1931 indicate that several non-native trees, including one now considered invasive, were planted in the forest. They were:

- Austrian pine
- Black locust (Invasive)
- Norway spruce
- Red pine

- Red spruce
- Scots pine
- White spruce

The current abundance and distribution of black locust is unknown.

Natural Communities

Five natural communities have been identified. (Table 6.2.6) Mass DEP has also identified a bog in the forest, but its community type has not been assessed. Similarly, CFI data suggest the presence of the Oak-Hickory community type, but this too has not been assessed. Pine plantations, which occur in the forest, are not considered natural communities. Areas identified as White Pine-Oak Forest may contain both white pine and red pine, due to previous forest management.

Table 6.2.5. Known natural communities of F. Gilbert Hills State Forest.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Deep Emergent Marsh	P	S4	1
Mixed Oak Forest	T	S5	2
Red Maple Swamp	P	S5	1
Shrub Swamp	P	S3	1
White Pine-Oak Forest	T	S5	2

- Classified according to Swain and Kearsley (2011).
- E = Estuarine, P = Palustrine, T = Terrestrial.
- The NHESP ranks communities from most rare (S1) to the most common (S5).
- Information contained in this table was obtained from the following sources:
 - DEP Wetlands (1:12,000) data layer.
 - CFI data.

Forests

Most of F. G. Hills (931.52 acres, 89.86%) is covered in upland forest. The overstory includes a variety of forest types, including mixed oaks, mixed hardwoods, white pine-oak, and white pine hardwoods (DEM 1989). CFI plots are only located in areas identified as either mixed oak or white pine-oak. Mixed oak areas have a variable mixture of black, and northern red oaks, with black birch and white pine present in lower numbers. White pine-oak areas include white and red pines, with black, white, and northern red oak in the canopy. Variable amounts off red maple and some hickories may also

occur in the canopy. Also present are red and white pine plantations. Forested wetlands are dominated by red maple. Non-forested areas include open water, marshes, and cultural grasslands.

Understory species identified in CFI plots include low bush blueberries, black huckleberry, witchhazel, mapleleaf viburnum, partridgeberry, nannyberry, American hazelnut, sassafras, unidentified buckthorn, brambles, graminoids, red maple, blackgum, and regenerating canopy species.

In June 2016, MassWildlife assessed the extent of deer browse on portions of the forest. They described the vegetation as “Moderately Impacted” by deer browse, which they noted was patchily distributed on the landscape (Stainbrook 2016a).

Wildlife

Few formal surveys have been conducted. The forest is identified as a birding hotspot by eBird and as of December 2016, 46 species have been recorded (eBird 2012). Most are common birds of thickets and small forest patches. Some, such as the ovenbird and veery, are more strongly associated with forest interior.

The Massachusetts Division of Fisheries and Wildlife conducted a fish survey in Sunset Lake in 1989; yellow perch, bluegill, largemouth bass, chain pickerel, and pumpkinseed were detected (Jackson 1989).

From the late 1960s through the mid-1980s, MassWildlife annually stocked 10–15 snowshoe hare in the forest. It is unknown if a self-sustaining population was established.

6.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of F. G. Hills is presented in Table 6.3.1. Cultural Resources are identified in Table 6.3.2.

Two archaeological resources are listed by the MHC. Because the MHC does not make information on archaeological resources available to the general

public, these resources are not included in Table 6.3.2.

Among F. G. Hills’ best known features are a variety of stone features, referred to by some as “dolmens,” of unknown origin and association. For the purposes of clarification, those sites have been inventoried and marked as archaeological sites of an “unknown” type; as opposed to pre-Contact, post-Contact, or historic types. Further research may eventually reveal a cultural significance to these sites. For now, they are to be protected under DCR’s Cultural Resources Policy. (See Appendix G.) These stone features are not included in Table 6.3, nor are they discussed elsewhere in this section.

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

As part of a MHC survey and planning project completed in 1984, prehistoric land-use zones along the Taunton River Basin were studied and published; F. G. Hills was included in this survey. No archaeological testing was conducted at that time, and to date, no pre-Contact sites have been recorded. F. G. Hills has a high potential for pre-Contact sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

There are two historic period archaeological sites within the limits of F. G. Hills that are listed on the MHC’s MACRIS inventory. The first site is listed as an unspecified industrial mill dating to the 18th century. The second site is the W. E. Barton Wigwam Site, which is part of the Pine Knoll-Barton State Forest landscape. Multiple quarries, including two granite quarries at High Rock and one at Goat Rock, are located in the forest and were most likely used by the CCC for raw material. These quarries are not listed in MACRIS.

Many more historic period archaeological sites are located in close proximity to the forest. The Foxborough Furnace Site, South Branch Site, and Lakeview Site are located just outside the limits of the forest. Many more mill sites exist within a mile for the forest.

Table 6.3.1. Significant events in the history of F. Gilbert Hills State Forest.

Year(s)	Events
1926	Foxborough State Forest is created with the purchase of 381.4 acres of land; an additional 280.9 acres are added the following year.
1927	The planting of thousands of trees per year begins; species include red pine, white pine, red cedar, hemlock, and spruce. This practice continues through the early 1940s.
1932–1935	Crews of 25 to 50 men perform forest management activities. Forest expands with the acquisition of an additional 147.5 acres.
1934	Fire observation tower constructed at High Rock; it is removed from the site in the 1950s.
1935	Six picnic areas, with a total of 20 tables and 15 fireplaces, are created. On October 20, nearly 1,000 people used these picnic areas. Additional picnic areas were created the following year. Quail and pheasant stocked by Massachusetts Division of Fisheries and Game; “all house cats hunted out.”
1937–38	CCC active in Foxborough State Forest.
1938	Hurricane damages forest; over 280,000 board feet of pine and 400 cords of hardwood are salvaged and sold in 1938–39.
1940	Foxborough Game Association, Inc. given permission to purchase and release game birds in the forest.
1942	Cut-A-Cord program begins.
1953	An F3 tornado passes directly through F. Gilbert Hills State Forest damaging trees. (www.digplanet.com/wiki/1953_Worcester_tornado)
1964	Department of Natural Resources trades 90,000 square feet (2.07 acres) in Foxborough State Forest to AT&T in exchange for five parcels, totaling 390 acres, in Great Barrington. (Book 4251, Page 703)
1966	Department of Natural Resources trades 168,750 square feet (3.87 acres) of Foxborough State Forest to AT&T in exchange for “certain land located in Great Barrington.” (Book 4355, Page 83)
1969	Forest renamed in honor of F. Gilbert Hills; a State Forester who served the Commonwealth between 1925 and 1969.
1970	CCC buildings removed and new Forest Headquarters and Operations Garage constructed.
1985	172 acre Pine Knoll area along Sunset Lake is acquired. In 1988 it is dedicated as Barton State Park.
1987	Foxboro-Wrentham-Franklin State Forests Advisory Council formed to solicit input on GOALS Plan. The council continues to this day.
1989	GOALS Plan released for F. Gilbert Hills and associated properties.

Table 6.3.2. Cultural resources of F. Gilbert Hills State Forest.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
High Rock Area								
F. Gilbert Hills State Forest - High Rock Area	LA	1934–1935	-	M	-	-	FOX.F	1, 2
F. Gilbert Hills State Forest - CCC stone steps	ST	1934–1935	5	M	-	-	FOX.918	2
F. Gilbert Hills State Forest - CCC stone wall ⁱ	ST	1934–1935	5	L	-	-	FOX.919	2
F. Gilbert Hills State Forest - CCC fire pits	ST	1934–1935	5	L	-	-	FOX.920	2
F. Gilbert Hills State Forest - CCC water hole #17 ^j	ST	1934–1935	3	M	-	-	FOX.921	3
SAGE Radar Site								
Concrete slabs (2)	AR	ca. 1952	-	L	-	-	-	4
Granite quarries (2)								
	AR	ca. 1934–1935	-	M	-	-	-	4
Goat Rock Quarry								
	AR	ca. 1934–1935	-	M	-	-	-	4
CCC Camp S-75								
F. Gilbert Hills State Forest - CCC camp site	LA	1934–1935	-	L	-	-	FOX.G	1, 2
F. Gilbert Hills State Forest - CCC chimney	ST	1934–1935	6	M	-	-	FOX.922	2
F. Gilbert Hills State Forest - CCC concrete slab	AR	1934–1935	-	L	-	-	FOX.923	4
F. Gilbert Hills State Forest - CCC stone wall	ST	1934–1935	4	M	-	-	FOX.924	2
F. Gilbert Hills State Forest - CCC powder magazine	ST	1934–1935	6	L	-	-	FOX.925	2
F. Gilbert Hills State Forest - CCC foundation	AR	1934–1935	-	L	-	-	FOX.926	2
CCC Water Holes (17)^k								
	ST	1934–1935	3	M	-	-	-	3
Pine Knoll								
F. Gilbert Hills State Forest - Pine Knoll	LA	1896–1935	-	H	-	-	FOX.D	1, 2
William Eleazer Barton House grounds	LA	1895	-	M	-	-	FOX.901	1
William Eleazer Barton octagonal tea house	BU	ca. 1901–1930	5	M	Y	-	FOX.221	5
William Eleazer Barton summer house	BU	ca. 1901	3	H	Y	E, S, W	FOX.222	5
William Eleazer Barton carriage barn - garage	BU	ca. 1901	3	H	Y	E	FOX.261	5
William Eleazer Barton shed - chicken coop	BU	ca. 1901–1935	2	L	Y	-	FOX.262	5
William Eleazer Barton House - entrance gates	ST	ca. 1901–1930	3	H	-	-	FOX.902	5
William Eleazer Barton culvert	ST	-	3	H	-	-	FOX.911	2
William Eleazer Barton earth dam (Sunset Lake Dam; MA03113)	ST	ca. 1840	4	M	-	-	FOX.912	2
William Eleazer Barton wigwam ruins	AR	1896, 1926	-	L	-	-	FOX.913	4
W. E. Burton (sic) “Wigwam Site”	AR	1896	-	-	-	-	-	4
State Forest Site 1								
	AR	18 th –19 th c	-	-	-	-	-	-
Additional Resources^l								
Colonial road (3)	ST	-	-	-	-	-	-	2
Federal Period road (3)	ST	-	-	-	-	-	-	2
Federal/Early Modern road	ST	-	-	-	-	-	-	2
Comee Sawmill Site	AR	-	-	-	-	-	-	4
Former Mill Site	AR	-	-	-	-	-	-	4

a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.

b. Date of construction provided, when known.

c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

d. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.

e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

f. The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
g. Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.								
h. The following guidance is offered for the ongoing maintenance of these cultural resources:								
1. Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).								
2. Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).								
3. Refer to Water holes BMP (DCR n.d.j)								
4. Refer to Archaeological Features BMP (DCR n.d.g).								
5. Under Historic Curatorship Program, refer to current lease.								
j. Not located on DCR property.								
k. Water hole #17, which is part of the High Rock Area landscape, is also one of 17 water holes throughout the forest.								
l. Documented through the 1984/1985 Cultural Resources Evaluation Project but not yet field verified or confirmed.								

HISTORIC RESOURCES

Historic Landscapes

High Rock Area. The CCC's initial efforts at Foxborough (i.e., F. G. Hills) State Forest focused on road repair and construction, forestry, and fire hazard reduction (Berg 1998). Later efforts focused on the High Rock area, the highest point in the forest. The CCC constructed a fire tower and water hole at High Rock to help detect and fight fires, respectively. Near the tower they created recreation facilities, including a trail with stone steps, and a picnic area with multiple fire pits. The fire tower was taken down in the 1950s; pieces of its footings remain. In the mid-1960s approximately 5.94 acres of land near the summit was traded to AT&T. The company constructed a 20,800 square-foot reinforced concrete building and erected a communications antenna; both continue to dominate the landscape. In October of 2000, this facility was sold to American Tower Management, Inc.; the current owner. All that remains of the CCC's work is the summit road (heavily modified over time), stone steps, a picnic area with fire pits, water hole #17, and some trails. A segment of stone wall constructed by the CCC is on American Tower Management, Inc.'s property. Considering how widely developed this area was for recreation, forestry, and fire management, and what little is left from that development, this area retains little of its historic integrity.



These CCC constructed stone steps at High Rock remain in use today as part of the Warner Trail. (See Appendix K for photo information.)

Semi Automatic Ground Environment (SAGE) Radar Site. The SAGE Air Defense System was an initiative of the Department of Defense in response to the Soviet threat during the Cold War. It was designed to identify approaching enemy aircraft anywhere in the country, and organize a counter attack. One component of this system was located in the High Rock area. This facility housed an AN/CPN-18 Gap Filler Radar, which was a part of the Cape Cod Radar System developed by MIT's Lincoln Labs. The site was taken offline in the 1960s and much of the equipment was left in place. Two concrete pads are all that remain.

CCC Camp S-75. This camp was located in the Forest Headquarters area and was similar in design and layout to other CCC camps. It consisted of a collection of buildings clustered around a circular drive. Each building served a distinct purpose, and the camp's function was to provide housing and act as the center of all maintenance needs for the Corps' endeavors. Camp S-75 was directed to establish

infrastructure to provide access for forest management, fire prevention, and recreation. Its buildings supported these goals. There was a powder magazine to store the dynamite needed to create roadways; a maintenance garage to provide upkeep for tools and equipment; and other buildings to house, feed, and provide recreation for the men. CCC structures were removed in 1970, when the current headquarters building and garage were constructed. All that remain are a few foundations, foot prints of past buildings, and a stone wall.



The staff of Camp S-75; October 13, 1934. Note the Camp buildings in the photo. (See Appendix K for photo information.)

Although the camp is gone, the work of the CCC remains evident. Many of the forest's roads were created or improved by the CCC, and 17 water holes remain throughout the forest. These water holes are depressions, typically about 15 feet in diameter and often stone-lined, that provided water for emergency firefighting (Berg 1998). In addition, the CCC constructed all of the resources within the High Rock Area landscape.

Pine Knoll. This two acre plot of land along the eastern shore of Sunset Lake was the summer home of Dr. William T. Barton and his family. Dr. Barton was a respected clergyman who began his career in the south but moved to Boston, and eventually Chicago, as his fame grew. He bought the property with the main house and two-story barn already upon it, and would add his "Wigwam" and octagonal teahouse during his tenure there. Dr. Barton's Wigwam was his private outbuilding that he used as a library and study. The original building was a modest one, with cedar plank siding and a large chimney. After his retirement, Dr. Barton remodeled the Wigwam, and spent most of his time there

researching and publishing essays on Abraham Lincoln. Today the property is managed and maintained through DCR's Historic Curatorship Program; it is currently under lease. The property retains most of its historic integrity, with only the Wigwam having been lost to vandalism and neglect. The rest of the buildings remain in use as a part of the residential property.

Immediately adjacent to Pine Knoll is the Sunset Lake Dam (MA03113). This dam is classified as an Intermediate sized dam, with a Significant Hazard Potential, in Poor condition. The most recent Phase 1 inspection and evaluation of the dam identified six deficiencies (Fuss & O'Neill 2011). Among these were voids in the downstream embankment, trees growing from the embankment, and the lack of an Operations and Maintenance Manual.

Buildings

There are no historic buildings that are not associated with historic landscapes.

Structures

Most of the roads surrounding F. G. Hills, and some within the forest, date to the Federal Period or earlier (i.e., 1775–1830; DEM 1989). West Street and at least one unpaved route through the forest have been located on Colonial Period maps (DEM 1989). The fire road extending westward into the forest from Granite Street may have been part of the Meeting House Road, which ran between Foxborough and Wrentham (DEM 1989). In addition, many of the forest's roads were created or modified by the CCC.

6.4. RECREATION RESOURCES

Recreation is primarily trails based. There are few recreation resources that are not associated with the forest's trails. The following recreation activities take place in F. G. Hills:

- Bicycling, mountain
- Boating, non-motorized
- Canoeing/Kayaking
- Dog walking, on leash
- Fishing
- Geocaching (14 caches as of December 2016)
- Hiking
- Horseback riding

- Hunting
- Nature study/Photography
- OHV use, dirt bikes only
- Orienteering
- Picnicking
- Running/Jogging
- Skiing, cross-country

A small picnic area is located uphill of the Operations Garage. Access from the Forest Headquarters area is up a sloping, gravel road or via a wood chip covered path. There are six grills and eight tables; none are accessible. The area was improved in 2015, as part of an Eagle Scout project.



Picnic area at F. Gilbert Hills State Forest. (See Appendix K for photo information.)

F. G. Hills is one of eight DCR parks where OHVs use is authorized; it is one of only four in eastern Massachusetts.

The following recreation activities take place under special permits: group motorcycle OHV events; New England Mountain Bike Association annual post-Thanksgiving “Turkey Burner Ride,” New England Orienteering Club (NEOC) events; and camping (e.g., Boy Scout overnights).

6.5. INFRASTRUCTURE

Property Boundary

F. G. Hills sits amid a landscape of commercial and industrial development, residential neighborhoods, and protected open space. The forest’s western boundary is bordered by commercial and industrial development along Route 1. Its northern boundary borders municipal conservation lands (i.e., Harold B.

Clark Town Forest, Cocasset Brook Greenbelt) and four residential lots. The eastern boundary largely abuts residential development. To the south, the forest borders municipal recreation land (i.e., Cocasset River Recreation Area), protected open space (i.e., Wolf Meadow Conservation Area, Daniels Tree Farm), residential development, and undeveloped and unprotected parcels. Encroachment has historically been an issue along the forest’s western boundary.

An isolated 9.8 acre parcel is located south of Mill Street. It is bounded on the north by the Cocasset River Recreation Area, Town of Foxborough Water Department Land to the south, and undeveloped private land to the east. This parcel has been proposed for an off-leash dog area (Ashton 2016).

Two easements that provide access to F. G. Hills were identified during the preparation of this RMP. A 12-foot-wide pedestrian access easement extends across 4 Laurel Tree Drive, Foxborough, from that road to the state forest (Book 15972, Page 161; see also Book 30673, Page 93). A 33 by 983 foot easement extends from the cul-de-sac at the end of Forest Road, Foxborough, through the former Erickson parcel, to the state forest (Land Court Plan No. 37849). This easement, which allows for “recreational purposes, emergency use of vehicles, animals and foot travel,” passes through a portion of Harold B. Clark Town Forest.

Buildings and Structures

There are five non-historic buildings (Table 6.5.1). Most are located at the Forest Headquarters area. The headquarters building and Operations Garage are approximately 45 years old and in need of repairs and updates. The Operations Garage’s siding is rotted near gutters and along the foundation. Bathroom windows and doors were replaced in 2016. Neither the Operations Garage nor the Forest Headquarters’ bathrooms meet current accessibility standards. The only septic system is located between the Operations Garage and Mill Street; its leach pit is located beneath the Mill Street parking lot (Gannett Fleming, Inc. 1999a). This septic system has an estimated flow of 1,300 gallons per day (GPD) and a maximum flow of 2,000 GPD (Correia 1970). It was most recently pumped in 2016, two years after its last pumping. Water is municipally sourced; there are no wells that provide potable water. Structural repairs were made to the Pole Barn

in 2016 to replace supporting beams that broke due to snow load in the winter of 2014/2015.



The Operations Garage; the smaller section on the right houses public restrooms. (See Appendix K for photo information.)

Although the Forest Headquarters is mostly accessible, its front entrance is not. Angled granite curbs separate the building's entrance paths from the parking lot and driveway. Restrooms at the Operations Garage have some barriers to access. Although the Women's bathroom may be reached

via a paved ramp, the path to the Men's bathroom is separated from the parking area by an angled granite curb. Both buildings' bathrooms have some universally accessible features (e.g., grab bars in stalls) and some features that do not meet current accessibility standards (e.g., small, disc-like faucet handles).



Access to the forest's public bathrooms is hindered by the presence of curbing. (See Appendix K for photo information.)

Table 6.5.1. Non-historic buildings and structures of F. Gilbert Hills State Forest.

Location and Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
High Rock Area				
Warner Trail shelter ^e	-	-	Y	-
Forest Headquarters – 45 Mill Street, Foxboro				
Forest Headquarters	1971	3	Y	E, I, H, S, T, W
Operations Garage/restrooms	1971	3	Y	E, H, S, T, W
Pole Barn	ca. 1990	4	Y	E, W(S)
Hazardous materials storage shed	-	3	Y	-

a. Date of construction provided, when known.

b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

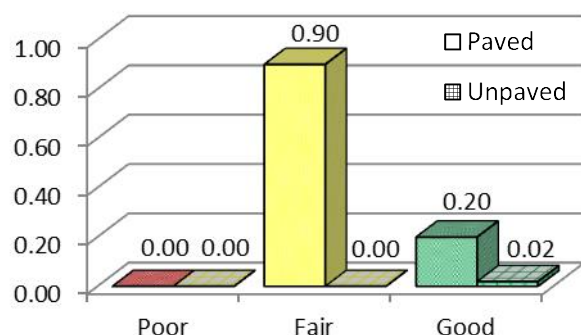
d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

e. Infrastructure located on DCR property, but not owned or controlled by the DCR. Its condition is not assessed.

Roads

There are few publicly accessible or administrative roads in the forest. The length and condition of these roads are identified in Figure 6.5.1. Forest roads that function primarily as trails are not included in these metrics.

Figure 6.5.1. Condition and length (in miles) of roads at F. Gilbert Hills State Forest.



The forest's only paved roads are associated with two areas; the entrance to the Forest Headquarters, and between Route 1 and the High Rock area. Historic maps indicate that the paved road commonly known as High Rock Road does not follow the road bed of what was formerly known as High Rock Road.

Parking

Most parking is located at, or opposite, the Forest Headquarters area (Table 6.5.2). Additional parking is provided at High Rock, and at small roadside pull offs on the forest's south and east sides. There is no designated accessible parking.

Table 6.5.2. Number of public parking spaces, by location and type, at F. Gilbert Hills State Forest.

Location	HP	Restricted	Other	Total
High Rock Area				
Trailhead parking ^a	0	0	8	8
Warner Trail crossing ^a	0	0	2	2
Unnamed trail crossing ^a	0	0	2	2
Bennett Road intersection ^a	0	0	2	2
Unnamed trail crossing ^a	0	0	2	2
Thurston Street at Megley Trail^b	0	0	8	8
Forest Headquarters				
Front ^a	0	0	8	8
Back ^a	0	0	8	8
Operations Garage – East side ^c	0	0	6	6
Mill Street – south side^a	0	0	20	20
Lakeview Road^b	0	0	6	6
Lakeview Road and Granite Street^b	0	0	2	2
Total	0	0	74	74

a. Based on the number of potential 9-foot-wide spaces.

b. Based on the number of vehicles that can fit between trees.

c. Based on pavement markings.

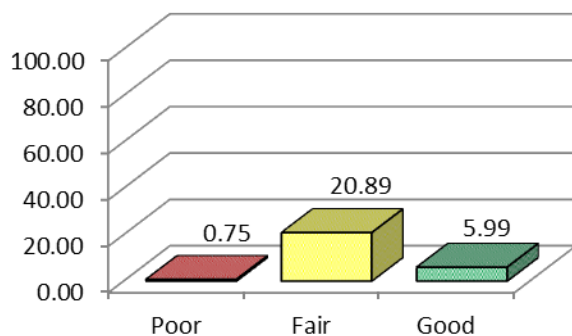
Hikers and mountain bikers access the forest's trails from all parking areas. Motorcyclists park at the High Rock lot, the nearest parking to OHV trails. They also park along the shoulder of High Rock Road. Equestrians park their vehicles and trailers behind the Headquarters Building. When parking is unavailable at the Forest Headquarters or Mill Street lots, some visitors park at the Cocasset River Recreation Area. This town-owned recreation area is approximately 500 feet west of the Mill Street lot, and has a parking lot that can accommodate approximately 90 vehicles. The use of this area by forest visitors is neither encouraged nor discouraged. Parking along Mill Street is actively discouraged due to safety concerns along this winding, narrow road.

The Forest Headquarters' lots are opened upon the arrival of staff in the morning and closed at 4 P.M. The Mill Street lot and off-road parking areas, including those at High Rock, are open during normal park hours (i.e., sunrise to sunset).

Trails

There are 27.63 miles of official trails. (Figure 6.5.2) Most are designated multi-use and open to non-motorized recreation. Approximately 6.6 miles of multi-use trails are open to motorized use (i.e., motorcycles). Some segments of the forest's trails are restricted to pedestrians. In addition to the official trails, an additional 0.94 miles of unauthorized user-created trails are known from the forest.

Figure 6.5.2. Condition and length (in miles) of official trails at F. Gilbert Hills State Forest.



The trails system is largely based on a network of unpaved forest roads (e.g., High Rock Road, Wolf Meadow Road, Megley Trail). Many of these roads predate creation of the forest; some segments have been widened, rerouted, or closed over the years. These forest roads allow for park operations and emergency access.

Multi-use trails open to motorized use loop around the western half of F. G. Hills. Access is from the parking area at High Rock. With the exception of the connector between the parking area and the loop trail, travel is unidirectional. All trail markings face one direction, indicating the direction of travel. Other users (e.g., hikers, mountain bikes) are allowed on this loop, and are expected to follow the direction of travel.

A 1.5 mile long portion of the park's trails is a designated Healthy Heart Trail. Its use is restricted to pedestrians. This trail is located immediately north of the Forest Headquarters; it is not ADA accessible.

A portion of the Warner Trail passes through F. G. Hills. It enters from Harold B. Clark Town Forest, passes approximately 1.8 miles over forest trails, and

exits the park at Route 1, just south of its intersection with Myrtle Street, Wrentham.

An initial assessment of the forest's trails (DCR 2015) identified the following six management issues:

- Poor separation and distinction between trails open to motorized use and those closed to motorized use
- The Warner Trail is routed on several sections of OHV trail
- Lack of clear signage and markings to distinguish trails open to motorized use from those closed to motorized use
- A confusing and inaccurate trails map
- Most trails are classified as being in "Fair" condition
- Trail density is greater than recommended for an area designated as Parkland (6–9 km/km²)

Kiosks and Signs

The park's Main Identification Sign is located at the entrance to the Forest Headquarters area on Mill Street. A Smokey Bear fire danger indicator sign is located nearby. A Site/Facility Identification Sign is located at the entrance to the High Rock Area. The forest's only kiosk is located at the trail head in the Forest Headquarters area. Map boards are located throughout the forest at major intersections. Routed wooden intersection markers are located at all major intersections of fire roads.



Example of marker installed at major fire road intersections. (See Appendix K for photo information.)

Iron Ranger

There is one iron ranger; it is located at the trailhead in the Forest Headquarters area.

Memorials and Markers

A memorial “in memory of all wildland fire fighters past, present, and future and the people who support them” is located adjacent to the Operations Garage, near the entrance to the Women’s bathroom. A metal plaque, bearing the inscription “In recognition of Mead Bradner – Friends of the Warner Trail – 1996” is attached to High Rock, along the Warner Trail. A metal marker is attached to the western gatepost at the entrance to the Barton House. It identifies the former Barton property as Barton State Park, named in honor of the Reverend William E., and Esther T. Barton. A marker on the eastern gatepost indicates that the Barton House is part of the Historic Curatorship Program.



Wildland fire fighter memorial. (See Appendix K for photo information.)

6.6. Interpretation

There is no regular interpretive programming. Occasional programming is offered. It is led by either forest staff or the Visitor Services Supervisor from Borderland State Park (Section 13). The following interpretive panel is located at the trailhead in the headquarters area:

- Civilian Conservation Corps (1933–1941)

6.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

F. G. Hills is managed by MassParks employees; there is one year-round, and two seasonal, personnel. (Table 6.7.1)

Table 6.7.1. MassParks personnel assigned to F. Gilbert Hills State Forest.

Job Title	Number of Positions 2016
<i>Year-round Personnel</i>	
Forest and Park Supervisor II	1
<i>Seasonal Personnel</i>	
Forest and Park Supervisor I (Long-term)	1
Recreation Facilities Repairer (Long-term)	1

Five Fire District 4 employees are also headquartered at F. G. Hills. Personnel include a year-round Fire Warden, a long-term seasonal State Firefighter I, and three long-term seasonal Laborer Fire 1 positions; they may work anywhere within Fire District 4.

Partnerships and Volunteers

The Foxborough-Wrentham-Franklin State Forests Advisory Council was formed during the preparation of the GOALS Plan (DEM 1989). It remains active, and provides advice and assistance on a variety of topics and projects. The King Philip Trail Riders is a motorcycle club that promotes off-road riding and works to ensure the continued availability of off-road recreational opportunities. Club members individually and collectively ride at F. G. Hills, and help maintain its trails. Volunteers from the New England Mountain Bike Association (NEMBA) assist with trail maintenance projects. The Friends of the Warner Trail perform stewardship activities on that trail, with local landowners (e.g., DCR) often stewarding the portion of trail on their property.

Safety

Local municipal fire departments provide fire response and emergency services. Support is provided by Fire District 4 personnel, who are based at F. G. Hills. Municipal police departments, the Massachusetts State Police (Station H-3, Foxborough Barracks), and the Massachusetts

Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

Financial contributions placed into the iron ranger are added to the Conservation Trust Fund and used at F. G. Hills. As of spring, 2016, there was approximately \$2,200 in the fund.

Retained Revenue

The park does not generate or retain revenue.

Other Revenues

There are no other revenues.

6.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 6.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of F. G. Hills. Legal agreements unique to the reservation are listed in Table 6.8.1.

Table 6.8.1. Key legal agreements for F. Gilbert Hills State Forest.

Party and Subject of Agreement	Type ^a	Expiration Date ^b
AT&T Corp. Permit for use of forest roads to access AT&T facility. <i>Renewable at request of permittee; not assignable.</i>	S	2000
King Philip Trail Riders Use of off-road vehicles in F. Gilbert Hills, Franklin, and Wrentham State Forests.	A	2003
Jeffrey and Alice Booker Historic Curatorship of Barton House and barn. <i>Option to extend for five additional years.</i>	L	2021

a. Agreement types include: A = Memorandum of Agreement; C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

b. Year that agreement expires.

An informal agreement with the Lewicke Family allows DCR to cross their property on Granite Street, Foxborough, in order to access the state forest. It also allows the Lewicke family to use a small portion of the forest for overflow parking for their Christmas Tree Farm. In the past, annual permits were issued by the Regional Supervisor for these activities. Both the Lewicke Family and Forest and Park Supervisor would like to re-establish a formal agreement.

Key planning documents are identified in Table 6.8.2. Not included in this list are annual follow-up inspection reports for the Sunset Lake Dam.

Table 6.8.2. Key management and guidance documents for F. Gilbert Hills State Forest.

Author and Document	Year
Department of Environmental Management F. Gilbert Hills State Forest: Guidelines for Operations and Land Stewardship.	1989
Department of Environmental Management DEM owned dam inspection/evaluation report: Dam name: Sunset Lake.	1999
Gannett Fleming, Inc. Environmental Audit Report: F. Gilbert Hills State Forest, Foxboro, Massachusetts.	1999 ^a
Fuss & O'Neill, Inc. Sunset Lake Dam: Phase I inspection/evaluation report. Date of Inspection: June 23, 2011	2011

Annual Maintenance

Ongoing management practices typically follow a regular schedule. Common activities, and the desired frequency with which they occur, are identified in Table 6.8.3.

Table 6.8.3. Annual cycle of management activities at F. Gilbert Hills State Forest.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Cleaning - Bathrooms	D	D	D	D
Cleaning - Walkways	AN	AN	AN	N/A
Litter removal -Recreation areas	AN	D	D	N/A
Litter removal - Trails	AN	AN	AN	AN
Maintenance - Picnic sites, fences, etc.	AN	D	AN	N/A
Mowing and trimming	AN	E7	AN	N/A
Mulching and fertilizing	N/A	AN	N/A	N/A
Pruning - Trees and shrubs	AN	AN	AN	N/A
Trash - Empty - Barrels	AN	E7	AN	N/A
Trash – Empty - Bathrooms	D	D	D	D
Weed flower beds	AN	AN	AN	N/A

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

Natural Resources

Water Resources

The only water management activities unique to F. G. Hills are associated with Sunset Lake Dam. See Buildings and Structures, below.

Rare Species

There are no rare species monitoring or management activities.

Invasive Species

There is no monitoring or management of invasive plants.

Vegetation

Field staff mows the Forest Headquarters area's lawns, removes downed trees from trails, and removes hazard trees in publically accessible areas. They also cut trees to block use of unauthorized trails. Old fields adjacent to Lakeview and Granite streets are cut twice per year; once in early summer and again in early fall. Park staff and Fire District 4 personnel maintain the forest's main fire roads through ongoing trimming of branches and other vegetation extending into the roadway.

There are seven CFI plots; they were last monitored in 2010.

Timber harvesting is used to manage the forest. Between 1976 and 2000, nine timber harvests conducted over 176 acres produced 142,000 board feet and 535 cords of wood. In 2015 a home fuelwood forest management project took place along High Rock Road, to the northwest of the summit. It had the following four goals (Gregory 2015a):

- Provide local forest products to local residents (i.e., wood for stoves and fireplaces)
- Protect public safety through the proactive removal of dead, declining, and hazardous trees
- Increase growth and vigor of large, legacy trees
- Reduce the import of non-native insects by providing locally grown wood

Participants cut 13.3 cords of wood from 6.7 acres of the forest.

MassWildlife personnel surveyed deer browse in the High Rock and headquarters areas in 2016 (Stainbrook 2016a). It is unknown if and when this survey will be repeated.

A utility corridor extends from Route 1 to the American Tower Management, Inc. facility atop High Rock. It is believed that the successor to the Worcester Suburban Electric Company is responsible for maintaining the vegetation along this corridor. See Grant of Location (Book 2873, Page 556) for the terms of a previous (i.e., 1949–1969) agreement.

Wildlife

There is no stocking of fish or game species. Deer hunting takes place in accordance with applicable regulations. There is no deer check station in the forest; the nearest is located at Bass Pro Shops in Foxborough.

Cultural Resources

The William Eleazer Barton House and associated outbuildings are managed by its curator, under the terms of the lease for that property.

Recreation Resources

Forest employees, with the assistance of volunteers, maintain trail markings on an as needed basis.

Infrastructure

Boundary

The Regional Forester and forest employees maintain boundary marking.

Buildings and Structures

Maintenance of the Barton House, associated outbuildings, and grounds are to be performed in accordance with the terms of the Historic Curatorship lease.

The deeds for parcels transferred to AT&T in 1964 and 1966 include the following condition:

In the event of abandonment of its use the grantee shall reconvey the granted premises to the Commonwealth of Massachusetts for a nominal consideration. (Book 4251, page 703 and Book 4355, Page 83)

In 2000, AT&T sold its parcels to American Tower Management, Inc. The associated deeds no longer include a statement about reconveying the property to the Commonwealth.

Consultants perform follow-up inspections of Sunset Lake Dam on at least an annual basis. Although there is no formal O&M Manual for the dam, the Forest and Park Supervisor performs minor maintenance, including clearing obstructions from the spillway and adjusting stop logs as necessary to maintain the impoundment.

Roads

The Forest and Park Supervisor grades gravel roads as needed. Park staff and Fire District 4 personnel construct and maintain water bars and other water control devices on the forest's fire roads. There are no other ongoing road maintenance activities.

When AT&T acquired two parcels atop High Rock in 1964 and 1966, the deeds provided them with "a right of way for access to the above described land over existing state forest roads on adjacent land of the Commonwealth of Massachusetts." (Book 4251, page 703 and Book 4355, Page 83)

When AT&T sold its parcels at High Rock to American Tower Management, Inc., it transferred "that certain easement created pursuant to the certain Special Use Permit dated January 26, 1996... a five (5) year renewable Special Use permit for the purpose of access to and from the property" (Book 14483, Page 230) This access extended "from U.S. Route 1 to Permittee's microwave station at High Rock Hill in Foxboro" (sic). However, under the terms of the Special Use Permit, the use of the forest's roads was not assignable. No Special Use Permits for American Tower Management, Inc. were identified during the preparation of this RMP.

American Tower Management, Inc. plows the road between Route 1 and its building at High Rock Hill. This is done only to allow services vehicles to their facility atop High Rock. The road is not maintained for winter travel by the public, and is posted "Pass at own Risk."

Parking Areas

The Forest and Park Supervisor grades the surface of the Mill Street lot, as needed. They also plow snow at that lot and the parking lot at the Forest Headquarters.

Trails

Trails, including the Warner Trail, are maintained by forest employees, with support from volunteers, such as the King Philip Trail Riders. Motorcyclists are restricted to an approximately eight-mile-long designated OHV trail. Their riding season extends from May 1 through the last Sunday in November. Mountain bikes are allowed on trails designated for their use, as well as OHV trails, on a year-round basis. Pedestrians are allowed on all trails year-round. Use of OHV trails is unidirectional for all user groups; trail markings indicate the direction of travel.

Kiosks and Signs

Forest employees are responsible for updating the content of the kiosks and map board.

6.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of F. Gilbert Hills State Forest. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 6.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 6.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

- No sections of F. G. Hills have been designated Zone 1.

Zone 2

- All areas not specifically designated as Zone 3.

Zone 3

The following portions of F. G. Hills are currently developed, appropriate for potential future development, or intensively used for recreation. They have been designated Zone 3.

- Forest Headquarters area, including the adjacent operations yard and picnic area (GOALS 1989).
- Former SAGE RADAR site.

- DCR-owned portion of the High Rock Area.
- The Pine Knoll-Barton State Forest historic curatorship lease area and Sunset Lake Dam.

Significant Feature Overlay

An OHV trail management Significant Feature Overlay was developed for the forest. This overlay follows the centerline of trails currently open to OHVs, and extends outward to the limits of the pre-existing road bed or trail (i.e., it does not include areas expanded by OHV use.) Special trail management activities are associated with the trails in this overlay.

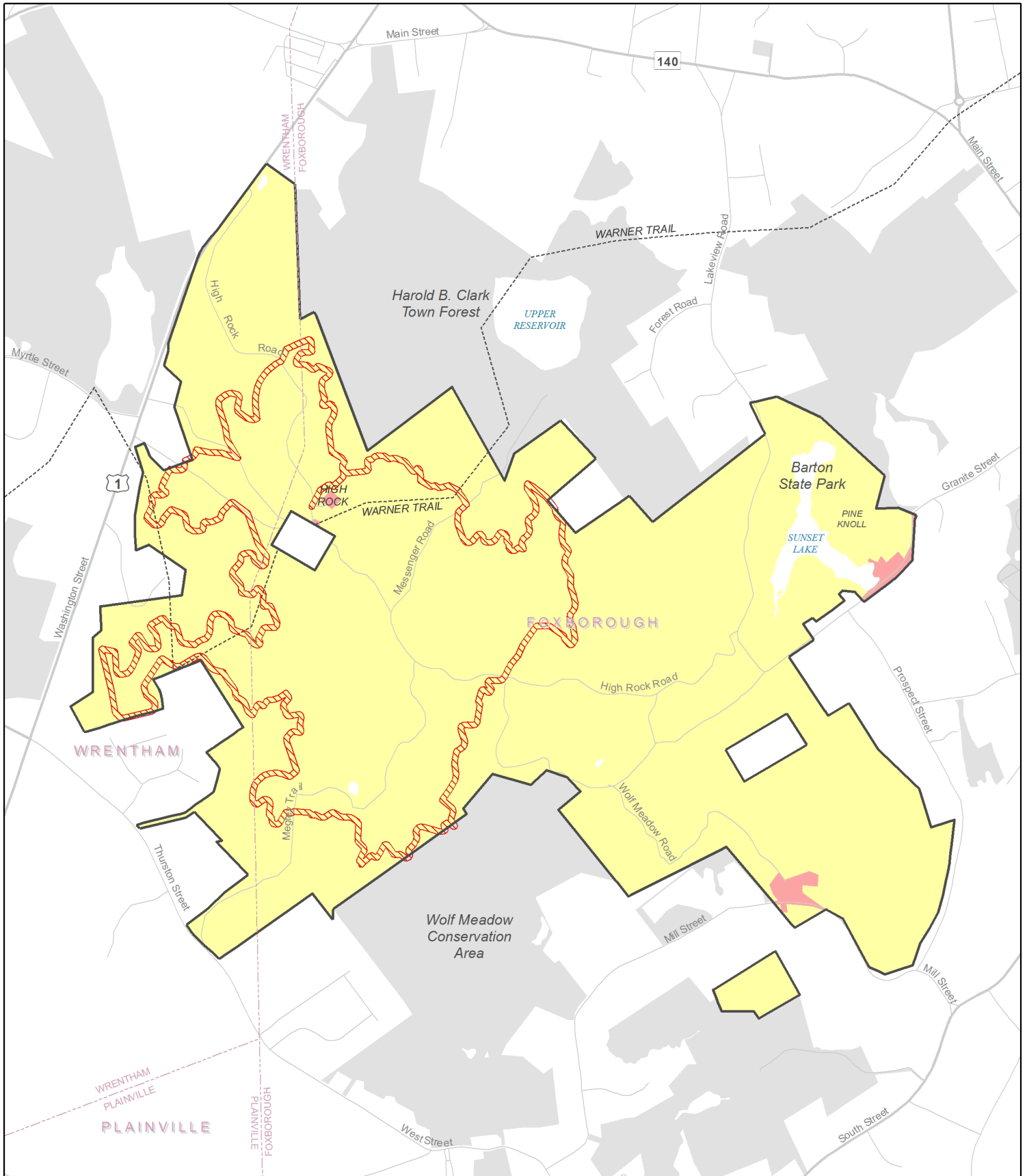
Management Recommendations

Seven priority management recommendations were developed for F. Gilbert Hills State Forest. (Table 6.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.



F. Gilbert Hills State Forest
Other Legal Interest - DCR
Other Protected Open Space

Land Stewardship Zoning
 Zone 1
 Zone 2
 Zone 3
 OHV Significance Overlay

F. Gilbert Hills State Forest

Figure 6.9.1

Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS. 2016

LOCUS

1,000

Feet

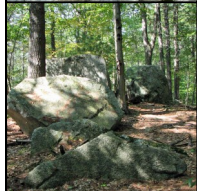
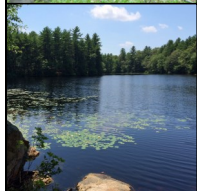
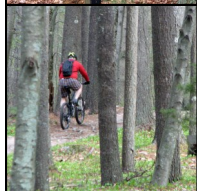
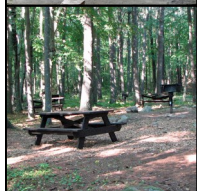
6-20

Table 6.9.1. Priority recommendations for F. Gilbert Hills State Forest.

Recommendation	Implementation^a
Address deficiencies to the Sunset Lake Dam as identified in Fuss & O'Neill (2011).	C, D, R
Update bathrooms to meet current accessibility standards.	E, S
Create one accessible parking space, with proper markings, signs, aisles, and curb cuts at the east side of the Operations Garage and a second at the front of the Forest Headquarters.	C
Create an accessible pathway to connect the Men's and Women's bathrooms to the newly created accessible parking space at the Operations Garage.	C
Implement recommendations identified in <i>Rapid Assessment and Trail System Recommendations</i> (DCR 20015).	P, R, V
Establish an updated agreement with the King Philip Trail Riders for the use of off-road vehicles in F. Gilbert Hills, Franklin, and Wrentham State Forests.	L, R, V
Establish an agreement with the New England Mountain Bike Association to cover their special events and trail maintenance and repair activities.	L, R, V

- a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.

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F. Gilbert Hills State Forest

F. Gilbert Hills State Forest is best known for its trail-based recreation. It is one of four DCR parks in eastern Massachusetts where off-highway vehicles (OHVs), trail bikes only, are allowed. Hikers, mountain bikers, and equestrians share these trails with OHVs, and also use a network of OHV-free trails. The forest is open for hunting, and Sunset Lake is a popular fishing spot. Bathrooms and a small picnic area with grills are located off the main parking lot next to forest headquarters on Mill Street, Foxborough.

Top Attractions

- OHV trails
- Hunting
- Hiking/Biking trails
- Sunset Lake

Friends Group

- None

Partners & Permittees

- Foxborough-Wrentham-Franklin State Forests Advisory Council
- King Philip Trail Riders

Conservation Opportunities

- Increase vegetation maintenance at the Sunset Lake Dam to improve aesthetics, increase fishing access, and enhance dam safety.
- Enhance the visitor experience by further improving bathroom, pathway, and parking accessibility.
- Implement recently identified trail system recommendations to improve signs, markings, and maps; increase separation of motorized and non-motorized trails; and reroute Warner Trail off OHV trails.

Park Inventory

Date Established: 1926

Landscape Designation
Woodland

Current Staffing

Year-round: 1
Seasonal: 2

Park Size (acres)

Total Area: 1,036.6
Wetlands: 79.3
Lakes and Ponds: 15.4

Rare Species

State-listed: 1

Cultural Resources

Documented: 27

Miles of Roads

Paved: 1.1
Unpaved: 0.0

Miles of Trails

Official: 27.6
OHV: 6.6

DCR Recreation Facilities

Picnic Areas: 1



Bristol Blake State Reservation has long been characterized by its boardwalk. The boardwalk in this photo was closed to the public in March 2016; a new boardwalk is planned for the near future. (See Appendix K for photo information.)

SECTION 7. BRISTOL BLAKE STATE RESERVATION

7.1. INTRODUCTION

Bristol Blake State Reservation (Bristol Blake) is located in the town of Norfolk, near the intersection of North Street and Route 115. (Figure 7.1.1) It is situated approximately 2.75 miles northwest of F. Gilbert Hills State Forest.

Bristol Blake is located adjacent to Mass Audubon's Stony Brook Wildlife Sanctuary (Stony Brook). Both properties share a common history, and are managed cooperatively as "an arboretum and for wildlife preservation, conservation, and related educational purposes" (DEM 1989).

Bristol Blake's landscape reflects its past uses as a family farm and as the site of grain, saw, cotton, wool, and shoddy mills. Its wetlands and ponds were largely created, and are maintained by, a series of dams and spillways associated with these mills. In 1932 the last of the site's mills, the Woolen Company, declared bankruptcy and the property was sold twice for taxes. The property was eventually purchased by Mrs. Bennett Bristol who donated land to both the Commonwealth and Mass Audubon in the late 1950s and early 1960s, respectively. Since then, Mass Audubon has expanded its holdings, while the size of Bristol Blake remains unchanged.

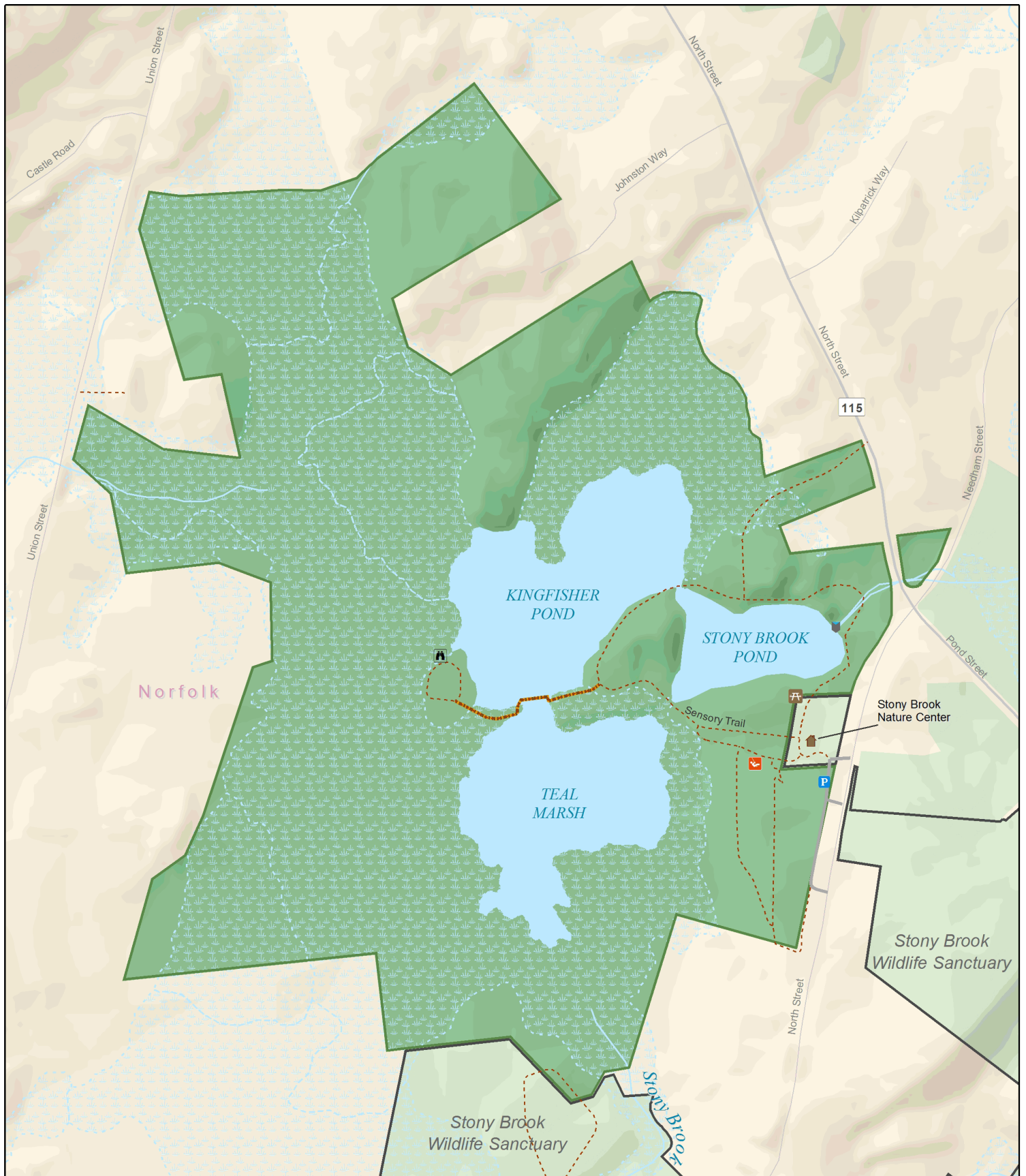
Because of Mass Audubon's presence, programming, and special events, the combined Bristol Blake and Stony Brook properties are better known as a Mass Audubon Sanctuary than as a state reservation. The reservation's physical, political, and regulatory attributes are summarized in Table 7.1.1.

Table 7.1.1. Physical, political, and regulatory settings of Bristol Blake State Reservation.

Setting	Name or Metric
Location:	Norfolk
Area (acres)^a:	140.15
Perimeter (miles)^a:	3.11
Landscape Designation^b:	Parkland
Legislative Districts:	
House	9 th Norfolk
Senate	Norfolk, Bristol, and Middlesex
Regulatory Designation:	Priority Habitat

a. Calculated using a Geographic Information System (GIS).

b. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.



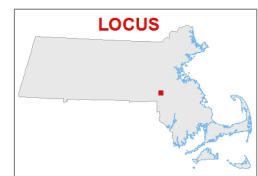
Bristol Blake State Reservation

Figure 7.1.1

1,000

Feet

Geographic information provided by MassGIS and DCR GIS, 2016



- Bristol Blake State Reservation
- Stony Brook Wildlife Sanctuary
- Blue Hills Complex Land
- Other Protected Open Space
- DCR Legal Interest
- Boardwalk
- Dam
- Mass Audubon Nature Center
- Picnic Area
- Playground
- Public Parking
- Viewing Platform

Associated Properties. There are two associated properties, neither is owned by DCR; they are:

- **Mirror Lake Dam.** The acquisition of Bristol Blake brought with it a legal interest in this Town of Norfolk owned dam (MA-02553). These rights were associated with the historic mills that once stood in Bristol Blake.
- **Stony Brook Wildlife Sanctuary.** This 102 acre sanctuary is contiguous with Bristol Blake. It is owned and managed by Mass Audubon, which also jointly manages Bristol Blake with the DCR. The two properties share resources and infrastructure.

The Forest and Park Supervisor from F. Gilbert Hills State Forest manages, as time and resources permit, several DCR properties, including F. Gilbert Hills State Forest (Section 6), Bristol Blake State Reservation, Franklin State Forest (Section 8), Wrentham State Forest (Section 9), Rehoboth State Forest (Section 10), West Bridgewater State Forest (Section 11), and Bridgewater State Forest (Section 12). They also oversee DCR's interests in Angle Tree Monument Reservation (Section 1).

7.2. NATURAL RESOURCES

Physical Features

There is relatively little topographic variation; due to the impounded water that covers much of the reservation's surface. The elevation at the water's surface is approximately 175 feet above sea level, with the surface of Kingfisher Pond and Teal Marsh normally about one foot higher than the surface of Stony Brook Pond (GZA GeoEnvironmental, Inc. 2012). Elevation increases to the north and east, with the highest point (229 feet) immediately north of Johnston Way. The lowest point in the reservation is at the base of Bristol Blake State Reservation Dam (approximately 160 feet). Adjacent Mass Audubon property has slightly greater topographic variation, ranging from approximately 157 feet at Bristol Pond to 236 feet north of the residential development on Audubon's Trail.

Water Resources

Bristol Blake's most prominent features are its wetlands and ponds. These and other water resources are summarized in Table 7.2.1.

Table 7.2.1. Water resources of Bristol Blake State Reservation.

Water Resource	Name or Metric
Watershed:	Charles
Aquifer:	
Medium Yield (acres)	0.00
High Yield (acres)	0.00
Rivers and Streams (miles)	0.11
Vernal Pools	
Certified (#)	1
Potential (#)	0
Wetlands (acres)	79.74
Lakes and Ponds (acres)	22.69

The reservation's open water, streams, and wetlands are hydrologically connected. Stony Brook flows northward into the reservation through Teal Marsh, which is hydrologically connected to Kingfisher Pond. Its waters then flow through two concrete spillways into Stony Brook Pond (GZA GeoEnvironmental, Inc. 2012a). It then exits the pond through two spillways associated with Stony Brook Reservoir Dam. From here Stony Brook flows eastward, joining the waters of the Stop River.



Kingfisher Pond (shown in photo) was created through the damming of Stony Brook. (See Appendix K for photo information.)

Approximately two-thirds of the reservation is susceptible to flooding. (Table 7.2.2) One-hundred-year floods are predicted to impact the ponds, wetlands, and adjacent uplands, including approximately 300 feet of the Sensory Trail and 1,050 feet of the Pond Loop Trail. Five-hundred-year floods are predicted to impact an additional 55 feet of the Pond Loop Trail as well as the banks of Stony Brook downstream of the dam. (Table 7.2.2)

Table 7.2.2. Potential impacts of flooding to Bristol Blake State Reservation.

Type of Impact	Acres	%
Flooding:		
100-year Storm	93.55	66.75
500-year Storm ^a	94.31	67.29

a. Cumulative value; includes 100-year storm impacts.



Predicted flooding at Bristol Blake State Reservation and adjacent areas. The Regulatory Floodway is represented with red and blue cross-hatching, the 100-year flood zone in blue, and the 500-year flood zone in orange. The reservation's trails are represented by red lines and the boardwalk by a purple line. The non-flooded area in the center of the Regulatory Floodway is the knoll between Teal Marsh, Kingfisher Pond, and Stony Brook Pond. (See Appendix K for photo information.)

Rare Species

State-listed Species

Only one state-listed species, the eastern box turtle, is known from Bristol Blake. (Table 7.2.3) It is associated with a variety of wetland and upland habitats (NHESP 2015b).

Table 7.2.3. State-listed species of Bristol Blake State Reservation, as identified by the NHESP.

Species ^{a, b}	Type ^c	MESA ^d
Eastern box turtle	R	SC

a. Presented alphabetically, by common name.

b. Fact sheets are available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.

c. Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.

d. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

Priority Habitat

There is little Priority Habitat (6.95 acres, 4.95%); it is located along the western boundary where the reservation has frontage on Union Street. This Priority Habitat is part of a larger polygon (PH 225) that extends from the Charles River Natural Valley Storage Area in Wrentham and Norfolk into the reservation.

Vegetation

An inventory of the plants of Bristol Blake and the Stony Brook Wildlife Sanctuary identified 336 species of plants, combined (Mass Audubon 2012).

Invasive Species

There are 21 known invasive or likely invasive plants (Mass Audubon 2012). (Table 7.2.4) The highest concentration is adjacent to the dam.

Table 7.2.4. Known invasive plants of Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary.

Species ^a	Status ^b	Source ^c
Common reed	I	1
Dame's rocket	I	1
European barberry	I	1
European buckthorn	I	1
Forget-me-not	L	1
Garlic mustard	I	2
Glossy buckthorn	I	1
Japanese barberry	L	1
Japanese knotweed	I	1
Morrow's honeysuckle	I	1
Multiflora rose	I	1
Norway maple	I	1
Oriental bittersweet	I	1
Porcelain berry	L	1
Purple loosestrife	I	1
Reed canarygrass	I	1
Spotted knapweed	L	1
Sycamore maple	L	1
Tree-of-heaven	I	1
Water chestnut	I	2
Yellow iris	I	1

- a. Presented alphabetically, by common name.
- b. Plants are classified as Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
- c. Information contained in this table was obtained from the following sources:
 1. Mass Audubon (2012)
 2. D. Williams, Mass Audubon, personal communication.

Natural Communities

Eight natural communities have been identified. (Table 7.2.5) Other cover types, including oak forest, white pine forest, and wooded swamp-mixed have also been reported (Mass Audubon 2012). A description of the Reservation's mixed forests (IEP 1978) suggests that the Oak-Hickory Forest natural community type may also be present.

Table 7.2.5. Known natural communities of Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Cultural Grassland	T	N/A	1
Deep Emergent Marsh	P	S4	1, 2
Mixed Oak Forest	T	S5	3
Red Maple Swamp	P	S5	1, 3
Shallow Emergent Marsh	P	S4	2
Shrub Swamp	P	S3	1, 2, 3
Successional White Pine Forest	T	S5	3
White Pine-Oak Forest	T	S5	1, 3

- a. Classified according to Swain and Kearsley (2011).
- b. E = Estuarine, P = Palustrine, T = Terrestrial.
- c. The NHESP ranks communities from most rare (S1) to the most common (S5).
- d. Information contained in this table was obtained from the following sources:
 1. Mass Audubon (2012).
 2. IEP (1978).
 3. DEM & Mass Audubon (2002)

Forests

Because most of Bristol Blake is wetlands or open water, there is relatively little upland forest. Only 31.09 acres (22.13% of the land area) is classified as such. Most is dominated by a mixture of white pine and red and white oaks (Mass Audubon 2012). Understory species include seedlings and saplings of canopy species, black huckleberry, witchhazel, and low bush blueberries. Forested wetlands are dominated by red maple. Non-forested wetlands are almost entirely shrub dominated. Non-forested upland areas include the parking lot, and cultural grasslands associated with the Nature Center.

The reservation's only CFI plot is located in a red maple swamp. Canopy species include red maple, black gum, hemlock, yellow birch, and white pine. Understory species in this plot include red maple, sweet pepperbush, highbush blueberry, black gum, ferns, muscle wood, skunk cabbage, and mosses.

Wildlife

Mass Audubon has collected information on the birds, amphibians, damsel and dragonflies, and aquatic invertebrates of Bristol Blake and Stony Brook, combined. This information is on file at Stony Brook. As of December 2016, 164 species of birds have been recorded (eBird 2012). The ponds and marshes attract waterfowl, herons, and migratory shorebirds. Swallows and flycatchers forage over the ponds and field. Warblers and other songbirds rest here during migration. Mass Audubon has included the combined reservation and sanctuary in its Stop River Important Bird Area (<http://www.massaudubon.org/iba/maps/stopriver.jpg>).

7.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Bristol Blake State Reservation is presented in Table 7.3.1. Cultural Resources are identified in Table 7.3.2.

Five archaeological resources are listed by the MHC. Because the MHC does not make information on archaeological resources available to the general public, these resources are not included in Table 7.3.2.

Table 7.3.1. Significant events in the history of Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary.

Year(s)	Events
1959	Agnes S. Bristol gifts approximately 141 acres for use as an arboretum, wildlife preservation, conservation, and related educational purposes.
1963	Mrs. Bristol donates a house on 1.2 acres to Mass Audubon; it is now serves as an employee residence.
1963	Mass Audubon Nature Center constructed on the 1.2 acre parcel; it opens to the public in 1964.
1960s	Central portion of Stony Brook Dam breaches leading to its reconstruction.
1970	Mass Audubon is gifted the 47.72 acres ‘Bristol-Thompson Acres’ parcel by Agnes S. Bristol (Book 4705, Page 680).
1970	Mass Audubon sells a 0.98 acre parcel on Cleveland Street (Book 4661, Page 364).
1972	Mass Audubon purchases an additional 36.00 acres (Book 4847, Page 674).
1974	No fishing policy implemented; it is modified in 2000 to allow fishing at three locations in the reservation.
1975	Mass Audubon purchases approximately 18 acres (Book 4652, Page 70).
1995	Mass Audubon purchases an additional 10 acres of land, expanding their sanctuary (Book 11034, Page 447).
2000	Mass Audubon acquires 3.91 acre parcel along North Street (Book 15012, Page 437); a conservation restriction on this parcel is granted to the Town of Norfolk (Book 15012, Page 438).
2008	Sensory trail opens in the reservation.
2015	Mass Audubon acquires 4.28 acres of land (Book 33092, Page 267), and sells a conservation restriction on this property to the Town of Norfolk (Book 33092, Page 271).

Table 7.3.2. Cultural resources of Bristol Blake State Reservation.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Bristol Blake State Reservation	LA	1714–1980s	-	M	-	-	NOR.D	1, 2
Blake Family Lands								
Blake, Enoch - Sayles, Caleb House ⁱ	BU	ca. 1807	-	-	-	-	NOR.32	-
Bristol-Blake Reservation - Causeway	ST	ca. 1807	3	M	-	-	NOR.912	1
Bristol-Blake Reservation - Unpaved road	ST	ca. 1940	3	H	-	-	NOR.913	1
Bristol Blake Reservation - Path system	LA	ca. 1975	-	H	-	-	NOR.914	1
Bristol-Blake Reservation - Stony Brook Millpond	LA	18 th , 19 th , and 20 th centuries	-	H	-	-	NOR. 915	1, 2
Stone walls	ST	-		M	-	-	-	1
Norfolk Woolen Company	LA							
Norfolk Woolen Company Dam and Raceway <i>Bristol Blake State Reservation Dam (MA00749)^j</i>	ST	ca. pre-1715–1960	3	M	-	-	NOR.919	1
Norfolk Woolen Company North Dam and Raceway	ST	ca. 1714	3	M	-	-	NOR.916	1
Norfolk Woolen Company Dam #2 <i>Spillway #1^j</i>	ST	ca. 1889	4	L	-	-	NOR.917	1
Norfolk Woolen Company Dam #3 <i>Spillway #2^j</i>	ST	ca.1889	4	L	-	-	NOR.918	1
No. 3 Carding Building	ST	-	6	L	-	-	-	1

- a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- b. Date of construction provided, when known.
- c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- d. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- f. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- g. Massachusetts Historical Commission inventory number; does not include Historic Archaeology numbers.
- h. The following guidance is offered for the ongoing maintenance of these cultural resources:
1. Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).
 2. Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).
- i. This resource is owned by Mass Audubon, its condition is not assessed.
- j. Corresponding names from GZA GeoEnvironmental, Inc. (2012a).

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

Bristol Blake has not been surveyed archaeologically and to date no pre-Contact sites have been recorded. It has a high archaeological potential for pre-Contact sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

Several archaeological resources are located on, or adjacent to, Bristol Blake. Because these resources are part of broader landscapes, they are described in Historic Landscapes, below.

HISTORIC RESOURCES

Bristol Blake's historic resources are associated with the following three eras of development.

- **17th–18th Century Agrarian Use; contact to 1800.** Resources from this period are associated with early development of the fertile lands dissected by Stony Brook for use as pre-industrial mill sites and agricultural lands.
- **19th and 20th Century Industrial Use;** Resources from the first half of this period are associated with the development of Stony Brook for the purpose of powering industrial endeavors. Resources from the second half are associated with the enhancement of existing industrial mechanics, and the introduction of new systems to provide for the needs of a modernized mill.
- **DEM/Mass Audubon Use; 1959-1965.** Resources from this period are associated with the initial development of Bristol Blake State Reservation.

Historic Landscapes

There are two landscapes on the reservation. The first is associated with the Blake Family's ownership of the property and includes both agricultural and early industrial resources. The second is associated with the Norfolk Woolen Company.

Blake Family Lands. Although the Blakes were not the first inhabitants of this land, the family was the most active in developing the natural landscape into an income producing property. Their efforts can still be seen today with the presence of the causeway,

roads, and stone walls. Generations of the Blake Family used these fertile lands to make a living in farming, livestock, and mill production. They constructed at least two homes and a barn, including the Mass Audubon owned Enoch Blake - Caleb Sayles House. It is because of their initial efforts, that subsequent owners were able to create a waterways system that powered a noteworthy mill. (See Norfolk Woolen Company, below.)

Two quarries, the Glacial Knoll Quarry and Beech Grove Quarry, are located within the Blake Family Lands landscape. They likely provided stone for the causeway, walls, dams, and building foundations. An associated stone dump, located on the glacial knoll, is believed to have been for stones used to construct or repair the causeway or building foundations.

Having served its purpose as an agricultural resource, the landscape now serves to provide visitors with a natural setting for birding, hiking, and other recreational activities. This change of use does not harm the remaining historic resources, allowing the landscape to retain a high level of historic integrity.

Norfolk Woolen Company. Stony Brook Pond (i.e., Mill Pond) is the oldest man-made body of water on the reservation. It was created by the damming of Stony Brook, and powered grist and saw mills in the late 17th and early 18th centuries. By the early 19th century manufacturing had shifted over to textiles; largely using existing dams for power. In 1889 the Norfolk Woolen Company was established; they soon after modified the existing water management system. They installed a dam next to a pre-existing dam in order to raise the elevation of the pond. They also installed Dam #1 and Dam #2 to help manage water levels to provide a steady power source for their mill. Today's Stony Brook Pond is largely a product of these modifications. The pond no longer serves its original purpose, and all of the dams went through a reconstruction in the 1960's following damage from flooding. Dam 1 and 2 have lost their historic recognition, having been encapsulated in concrete.

The reconstructed Norfolk Woolen Company Dam (i.e., Bristol Blake State Reservation Dam (MA00749)) is classified as an Intermediate sized dam, with a Significant Hazard Potential, in Fair condition. The most recent Phase 1 inspection and

evaluation of the dam identified 15 deficiencies and recommended six studies, six recurrent maintenance activities, and eight minor repairs (GZA GeoEnvironmental, Inc. 2012a). Among the deficiencies were inappropriate amounts of vegetation, both too little and too much; missing mortar on the spillway; displaced stones at the culvert outlet headwall; and a potentially inadequate spillway capacity.



Stony Brook Dam was reconstructed in the mid-1960s following a breach. It currently maintains water levels in Stony Brook Pond. (See Appendix K for photo information.)

A few historic resources associated with the Norfolk Woolen Company remain today. Although all of the buildings that performed industrial services for this company are now gone, foundation pads, raceways and the dam still exist to provide the context for the site. The dam in particular still retains a great deal of its historic integrity, having been little altered since its construction. Downstream from the dam, a raceway winds past foundations and footprints that once rooted machinery and buildings that provided for the creation of woolen products. In summary, the overall site retains very little of its historic integrity, but provides enough for the public to interpret what this site once was.

Buildings

There are no historic buildings that are not associated with the Blake Family Lands historic landscape.

Structures

There are no historic structures that are not associated with a historic landscape.

Objects

There are no known historic objects.

7.4. Recreation Resources

Because the reservation is jointly managed with Mass Audubon as a wildlife sanctuary and environmental education center, the emphasis is on conservation rather than recreation. As a result, there are fewer recreation opportunities here than at other similar sized state parks. In accordance with Mass Audubon's policies, dogs are prohibited from the property. The following recreation activities take place:

- Fishing (designated areas only)
- Geocaching (2 caches as of December 2016, Stony Brook Wildlife Sanctuary only)
- Hiking/walking
- Nature Play Area
- Nature study/Photography
- Picnicking (designated areas)

The Nature Play Area is a 50 x 50 foot fenced in area lined with wood mulch. It contains benches, climbing logs, and carved wooden representations of a turtle and snake.



The Nature Play Area, located between the Nature Center and cultural grassland, was constructed as an Eagle Scout project. (See Appendix K for photo information.)

Mass Audubon conducts two large annual events; an Earth Day/Arbor Day event in April and a Fall Fair in October. The Earth Day/Arbor Day event focuses primarily on environmental education (DEM and Mass Audubon 2002); recreation and fundraising are secondary. Average annual attendance ranges from 200–350, depending on the weather. In contrast, the Fall Fair is the sanctuary’s single largest fundraiser. First held in 1978, this event includes interpretive programming, games, and craftsman booths. An estimated 1,400 people attended in 2015.

7.5. INFRASTRUCTURE

Property Boundary

Bristol Blake lies within an area defined by Union Street to the west, Diamond Street to the south, and North Street to the north and east. Between these roads and the reservation, land use is generally low-density residential, with many abutting lots largely forested. A few abutting lots are undeveloped. Stony Brook abuts much of the reservation’s eastern and southern borders. Farther east, across Route 115, is the 41 acre Campbell Town Forest and the Department of Corrections’ 690 acre “Land Use Change Area.”

No easements were identified during the preparation of this RMP.

Buildings and Structures

There are no non-historic buildings on the reservation (Table 6.5.1). The only non-historic structures are two boardwalks, three bridges, and an observation platform associated with the reservation’s trails. The longest boardwalk is approximately 520 feet long, and connects the Sensory Trail to the Beech Grove Trail. The decking

is off level due to ice damage to some of its supports. In 2016, a visual assessment of the boardwalk was performed in response to observed “horizontal displacement and a severe inclination” along much of its length (CLE Engineering 2016). The assessment revealed that the boardwalk “completely failed in a drop in elevation and racking of the supporting posts,” and recommended “that the only feasible solution is to replace the structure including the supporting posts” (CLE Engineering 2016). The second boardwalk is small (i.e., 26 feet), and is located downstream of the dam. Two wooden bridges span spillways on the Sensory and Pond Loop trails; the third is located downstream of the dam. The observation platform is located at the northwest corner of the Beech Grove Trail.



Wildlife observation platform overlooking Kingfisher Pond. (See Appendix K for photo information.)

A modern well is located in the cultural grassland, approximately 350 feet from the Nature Center. It provides non-potable water to faucets on the outside of that building.

Table 7.5.1. Non-historic buildings and structures of Bristol Blake State Reservation.

Location and Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
Boardwalk - Sensory Trail	-	6	-	-
Bridge - Sensory Trail	c. 1970s	2	-	-
Observation platform - Beech Grove Trail	-	3	-	-
Bridge - Pond Loop Trail	-	2	-	-
Boardwalk - Downstream of dam	-	2	-	-
Bridge - Downstream of dam	-	2	-	-

a. Date of construction provided, when known.

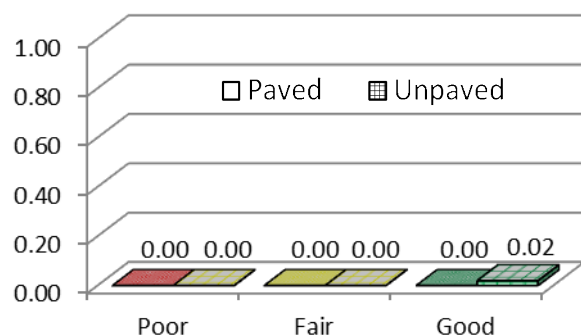
b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

Roads

There are no paved roads, and virtually no unpaved roads. The length and condition of these roads are identified in Figure 7.5.1. The reservation's forest roads are classified as trails, and are addressed later in this chapter.

Figure 7.5.1. Condition and length (in miles) of roads at Bristol Blake State Reservation.^a

Parking

There is one public parking lot (Table 7.5.2). It is located partially on Bristol Blake and partially on Stony Brook. Although there is accessible parking, there is no accessible aisle associated with these spaces. During large events, the adjacent cultural grassland is used for parking visitor's vehicles.

Table 7.5.2. Number of public parking spaces, by location and type, at Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary.

Location	HP	Restricted	Other	Total
Main lot	2	0	24	26
Total	2	0	24	26

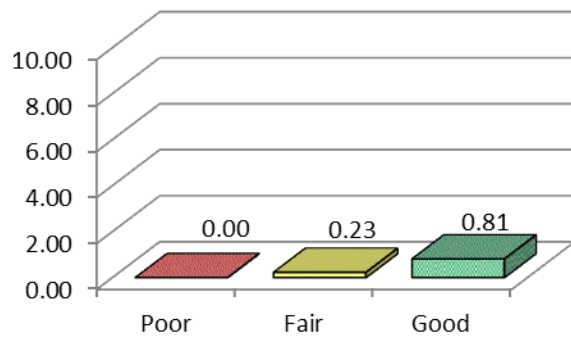


The parking lot for Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary is located partially on DCR property (foreground) and partially on Mass Audubon property (background). Mass Audubon's Nature Center is visible at the back of the photo. (See Appendix K for photo information.)

Trails

There are 1.04 miles of official trails in the reservation (Figure 7.5.2). This includes the Sensory Trail, Pond Loop Trail, and forest roads. There are no known unauthorized trails.

Figure 7.5.2. Condition and length (in miles) of official trails at Bristol Blake State Reservation.



There are three formal trails: the Sensory Trail, Beech Grove Loop, and Pond Loop Trail. The Sensory Trail extends approximately 1,000 feet, from the Nature Center to the boardwalk at the junction of Teal Marsh and Kingfisher Pond. A post-and-rope guide system, leads visitors past field and forest to a boardwalk overlooking a pond and wetland. Along the way, there are eleven stops with interpretive information. (See Section 7.6 for additional information.) Designed as a trail for people of all abilities, there are no stairs or side slopes. The Beech Grove Trail begins at the western end of the Sensory Trail; it provides access to an observation platform overlooking Kingfisher Pond. The Pond Loop trail begins near the nature center, passes along the north shore of Stony Brook Pond, and joins the Sensory Trail near the boardwalk. The Beech Grove Trail and Pond Loop trails are not universally accessible.

Kiosks and Signs

The reservation's main identification sign is located on the western side of the intersection of North Street and Route 115. A Mass Audubon sign is located at the parking lot entrance. It identifies both Stony Brook and Bristol Blake. A single kiosk is located along the main entrance path, on Mass Audubon property, opposite the southwest corner of the sanctuary's Nature Center. It describes the property's joint ownership and management. This sign is out of date, with multiple references to the

Department of Environmental Management. Multiple signs and displays are associated with the exterior and interior of the Nature Center.



The kiosk at Bristol Blake State Reservation bears the names of both the reservation and of Stony Brook Wildlife Sanctuary. (See Appendix K for photo information.)

Iron Ranger

There is no iron ranger.

Memorials and Markers

No memorials or markers were identified on DCR property.

7.6. INTERPRETATION

It was the wish of Agnes S. Bristol, the woman who donated Bristol Blake to the Commonwealth, that her land be "used as an arboretum and for wildlife related preservation, conservation, and related educational purposes" (DEM 1989). To that end, the DCR and Mass Audubon jointly operate Bristol Blake and Stony Brook as an environmental education facility. Annual visitation to the sanctuary averages approximately 10,000. Mass Audubon's interpretive resources and programming includes: static displays, interpretive signs, interpretive media for use with the Sensory Trail, an annual summer Natural History Day Camp, year-round programming, and special events.

The Nature Center is located at the park/sanctuary entrance; it includes static displays, live animal exhibits, rooms for interpretive programming, a gift shop, and staff office space.

The Sensory Trail is an interpretive trail for “all seasons, all senses, all people.” It is located along the historic causeway. Guides to this trail are available in print (Mass Audubon and DCR n.d.), large print, Braille, and downloadable digital audio files (<http://www.massaudubon.org/get-outdoors/wildlife-sanctuaries/stony-brook/about/accessibility/sensory-trail#audiotour>). Twelve Braille, print, and tactile signs are located along the trail; they highlight the following stops:

- Introduction/Trail begins
- Stone wall
- Gray birch
- Eastern red cedar
- Field and bird boxes
- Red oak and cherry
- Red maple
- Spillway
- The Knoll
- Eastern white pine
- Wetland plants
- Ponds and marshes



This sign indicates a stop along the interpretive trail. Note the printed text, Braille text, and blue triangular sign indicating that audio information is available. The ball along the guide rope indicates the presence of Braille text nearby. (See Appendix K for photo information.)

Mass Audubon offers a variety of interpretive programs, including those offered through its Natural History Day Camp. This American Camp Association accredited camp offers regular programming for campers ages 3–10, and specialty programming for children ages 9–15. It offers trail explorations, hands-on activities, non-competitive

games, and crafts. Programming is offered Monday through Friday, from late June through mid-August. Registration and payment are required in advance; fees differ among Mass Audubon member and non-members. Information on Mass Audubon’s summer camps, including Stony Brook’s, may be found at <http://www.massaudubon.org/get-outdoors/summer-camps>.

Interpretive programming is offered throughout the year for all age groups. These are the “related educational purposes” specified by Mrs. Bristol in her donation of the land. The following programs have been presented at Stony Brook:

- A birdwatcher’s migration
- Amphibians after dark
- Beaver walk
- Beginning birding
- Bird banding demonstration
- Bird house gourd workshop
- Build a backyard birdhouse
- Butterflies of Stony Brook
- Early morning birds
- Early morning explorations
- Exploring the landscape for clues to our past
- Family camp out
- Family bird banding program
- Family ponding
- Family tracking
- Hardy birds
- History of Stony Brook
- History tour of Norfolk (partially in sanctuary)
- Intermediate birding
- Learn the ferns
- Nature’s fireworks: space invaders
- Pumpkin fest
- Raptor identification primer
- Scout night hike
- Shrubs, herbs, and trees; plant identification made easy
- Summer star search
- The legendary bald eagle

- The downfall of the Moon! What is a lunar eclipse?
- Twilight canoe
- Wetland plants: A field exploration
- What's in our backyard?
- Whoooo's out there: Evening wildlife prowling!! (summer program); Stony Brook night life prowling!! (fall program); Winter wildlife prowling!!
- Wildflower ID workshop
- Wildlife in winter
- Winter adaptations
- Winter star search
- Wonder walk for families: Explore the magic of woodlands and wetlands. This program series includes: Winter adventures; Patterns of nature; Spring mysteries; Summer mysteries; Totally turtles; and Sweets for the tweets.

The sanctuary's staff also offers a variety of interpretive programming off-site.

Interpretive programming is also incorporated into events, such as the sanctuary's annual Fall Fair and children's birthday parties.

7.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

The Forest and Park Supervisor at F. Gilbert Hills State Forest manages this property in association with Mass Audubon, under the terms of a Management Agreement.

Partnerships and Volunteers

Bristol Blake is operated through a partnership between the DCR and Mass Audubon. The latter recruits, trains, and uses volunteers for "certain maintenance, interpretive, and visitor services."

Safety

The Norfolk fire department provides fire response and other emergency services. Additional fire response is provided by personnel from DCR's Fire District 4, which is based at F. Gilbert Hills State Forest. The Norfolk Police Department, Massachusetts State Police (Station H-3, Foxborough Barracks), and the Massachusetts

Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

There are no trust funds.

Retained Revenue

DCR does not generate or retain revenue at this park.

Other Revenues

Park operations are largely funded through admission fees collected by Mass Audubon. Entrance is free for Mass Audubon members, DCR season pass holders, and "any others provided for in the Code of Massachusetts Regulations pertaining to DCR's fees." Other visitors pay Mass Audubon's standard non-member entrance fee, which is currently \$4 for adults and \$3 for seniors and children. Fees in excess of \$12,000 in any given fiscal year go into a Mass Audubon restricted endowment and are used for the benefit of DCR and Mass Audubon properties in the Town of Norfolk. Entrance fees have not yet exceeded this threshold. On-site donations are restricted for use at these properties.

7.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 7.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of Bristol Blake.

Legal agreements unique to the reservation are listed in Table 7.8.1. The most important is the Memorandum of Understanding (MOU) between the DCR and Mass Audubon. This agreement sets forth the relationship between these entities for the joint use of Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary as an environmental education facility. It specifies the roles and responsibilities of each party. Key information from this MOU is presented throughout this section. However, property managers are advised to familiarize themselves with the full, and most current, version of this agreement.

Table 7.8.1. Key legal agreements for Bristol Blake State Reservation.

Party and Subject of Agreement	Type^a	Expiration Date^b
Towns of Norfolk and Wrentham Control of water levels in Mirror Lake	A	N/A
Massachusetts Audubon Society Management agreement for Bristol Blake State Reservation. <i>May be extended for one or more successive five year terms.</i>	U	2016

- a. Agreement types include: A = Memorandum of Agreement; C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

- b. Year that agreement expires.

A Sanctuary Committee provides advice on the operation and management of Stony Brook Wildlife Sanctuary. This Committee includes representatives from the towns of Franklin, Plainville, Norfolk, Walpole, and Wrentham. The Sanctuary Director and the Forest and Parks Supervisor from F. Gilbert Hills are *ex-officio* members of this Committee.

Key planning documents are identified in Table 7.8.2.

Table 7.8.2. Key management and guidance documents for Bristol Blake State Reservation.

Author and Document	Year
Department of Environmental Management F. Gilbert Hills State Forest: Guidelines for Operations and Land Stewardship.	1989
Gannett Fleming, Inc. Environmental Audit Report: Bristol Blake State Reservation, Norfolk, Massachusetts.	1998 ^a
Haslam, B., and B. Martin. Prescribed burn plan: Bristol Blake State Reservation, Stony Brook Wildlife Sanctuary, Norfolk, MA.	2001
Massachusetts Department of Environmental Management and Massachusetts Audubon Society. Bristol Blake State Reservation & Stony Brook Audubon Sanctuary: Ecological management plan. Autumn 2002.	2002
GZA GeoEnvironmental, Inc. Bristol Blake State Reservoir Dam (sic): Phase I inspection/evaluation report. Date of Inspection. June 1, 2012	2012 ^a
Massachusetts Audubon Society Stony Brook Wildlife Sanctuary rapid ecological assessment. December 2012.	2012

Annual Maintenance

In accordance with the MOU between the DCR and Mass Audubon, much of the ongoing maintenance of Bristol Blake is performed by employees and volunteers of Mass Audubon. Activities identified in the MOU as being performed by DCR are identified in Table 7.8.3. Maintenance activities not taking place on an annual basis are identified elsewhere in this section.

Table 7.8.3. Annual cycle of DCR management activities at Bristol Blake State Reservation.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Maintenance - Administrative roads	AN	AN	AN	N/A
Maintenance - Trails, major maintenance only	AN	AN	AN	AN
Mowing - Cultural grassland	N/A	N/A	A	N/A
Mowing - Around dam	N/A	A	N/A	N/A

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

Natural Resources

Water Resources

The acquisition of Bristol Blake carried with it legal rights in, but not ownership of, the Mirror Lake Dam. Among these rights was the regulation of the water level within specified limits. In 1980 the DEM (now DCR) entered into an agreement with the Towns of Norfolk and Wrentham that transferred this responsibility to the Highway Superintendent of the Town of Norfolk.

Rare Species

The DCR does not conduct any rare species monitoring or management. Mass Audubon may observe state-listed species during its biological surveys.

Invasive Species

Management of four species has taken place in the past. Common reed and Japanese knotweed have been controlled by mechanical means (i.e., hand pulling, cutting); *Galerucella* beetles have been used to control purple loosestrife (Mass Audubon 2012). The beetle's impact on purple loosestrife was monitored from 2005 to 2008. Sanctuary personnel and volunteers hand pull water chestnut from the ponds.

Both DCR and sanctuary personnel control poison ivy, a noxious but non-invasive plant, in areas used for sanctuary programs.

Vegetation

There is one CFI plot; it was last monitored in 2010. Mass Audubon established six permanent vegetation sampling plots in 2011 and monitors trees, shrubs, and herbaceous vegetation.

Under the terms of the MOU, Mass Audubon mows lawns and trails, and the DCR mows around the dam and also the cultural grassland adjacent to the parking lot. The grassland is managed through annual mowing and infrequent burning (e.g., Haslam and Martin 2001). This management is intended to provide wildlife habitat, slow encroachment by woody plants, and provide conditions favorable for special events. Mass Audubon personnel mow portions of the grassland throughout the growing season. The DCR mows the entire field once per year, immediately prior to the Fall Fair.

Mass Audubon personnel, under the direction of a Licensed Pesticide Applicator, apply herbicides on their property to control poison ivy in areas used by attendees of their day camp. Poison ivy is also common on portions of DCR property used by day campers. Mass Audubon would like to control poison ivy in these areas; the current management agreement is silent on this activity.

Mass Audubon periodically performs vista pruning in front of the observation platform.

Wildlife

There is no stocking of fish or game species. There is no hunting or trapping, "other than for the purposes of control by representatives of the Commonwealth," in accordance with a restriction placed on the use of the property by Agnes S. Bristol, who donated the property to the Commonwealth. The nesting population of Canada geese is controlled through egg addling, which is performed under permit from Mass Wildlife. In 2015, a total of nine eggs from two nests were added. Fishing is permitted at specific DCR-owned sections of the shores of Kingfisher and Stony Brook ponds; however it often takes place outside of these authorized areas. Hunting, trapping, and fishing are not allowed on Mass Audubon property, with Sanctuary Guidelines instructing visitors to "Refrain from fishing, hunting, or trapping" (<http://www.massaudubon.org/get-outdoors/wildlife-sanctuaries/stony-brook/sanctuary-guidelines>).

A “beaver deceiver” has been installed adjacent to Spillway #2, between Stony Brook and Kingfisher ponds. DCR and Mass Audubon personnel periodically clear beaver-cut vegetation and other materials from the fencing associated with this device. In the fall of 2015, beaver began blocking the upstream culvert designed to keep water flowing through the deceiver. The grates around this culvert were cleaned of mud and debris in 2016.



Beaver deceiver showing materials blocking both the main flow under Spillway #2 and the offshore culvert. (See Appendix K for photo information.)

Cultural Resources

The DCR is responsible for the repair and maintenance of Stony Brook Reservation Dam. Mass Audubon is responsible for reporting any problems with the dam and associated spillway to the DCR, which will “exercise all best efforts to rectify any hazards or damage within a reasonable period of time and according to any available funding.” The DCR’s legal interest in the Mirror Lake Dam does not include maintenance or repair.

Recreation Resources

Picnic areas are maintained by Mass Audubon personnel and volunteers.

Infrastructure

Boundary

The Forest and Park Supervisor from F. Gilbert Hills and the Regional Forester maintain boundary signs and monitor for encroachments.

Buildings and Structures

There are no buildings to maintain. DCR is responsible for replacement of existing boardwalks, observation platforms, and other interpretive structures. Mass Audubon is responsible for the minor maintenance of these structures.

Roads

There are no road maintenance activities unique to this park.

Parking Areas

Mass Audubon is responsible for minor maintenance activities (e.g., clearing debris, pavement markings) and for snow removal. DCR is responsible for major repairs including sealing and repaving the lot.

Trails

Mass Audubon is responsible for minor trail maintenance, and DCR is responsible for major trail maintenance (e.g., relocation, the cutting of downed and hazard trees).

Under the terms of the 2011 MOU, DCR is responsible for maintaining and gating fire and service roads (i.e., forest roads). There is currently no gate on the fire road entrance opposite 81 North Street.

Kiosks and Signs

Mass Audubon maintains the kiosk and most signs. The exception is DCR’s boundary signs. Mass Audubon provides display space inside the visitor center for DCR brochures; the DCR is responsible for updating its contents and maintaining the display.

Interpretation

Mass Audubon is responsible for all interpretive programming, signs, and materials.

7.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Bristol Blake. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 7.9.1) for

consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 7.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

- No sections of Bristol Blake State Reservation have been designated Zone 1.

Zone 2

- All areas not specifically designated as Zones 3.

Zone 3

The following portions of Bristol Blake are currently developed, appropriate for potential future development, or intensively used for recreation. They have been designated Zone 3.

- Existing developed areas adjacent to the Nature Center and Blake-Sayles House, including cultural grasslands, the DCR-owned portion of the parking lot, the nature play area, and other features.
- The Bristol Blake Reservation Dam, including the earthen dam, all spillways, splash pad, and the adjacent discharge channel.

Significant Feature Overlay

There are no Significant Feature Overlays.

Management Recommendations

Four priority management recommendations were developed for Bristol Blake State Reservation. (Table 7.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

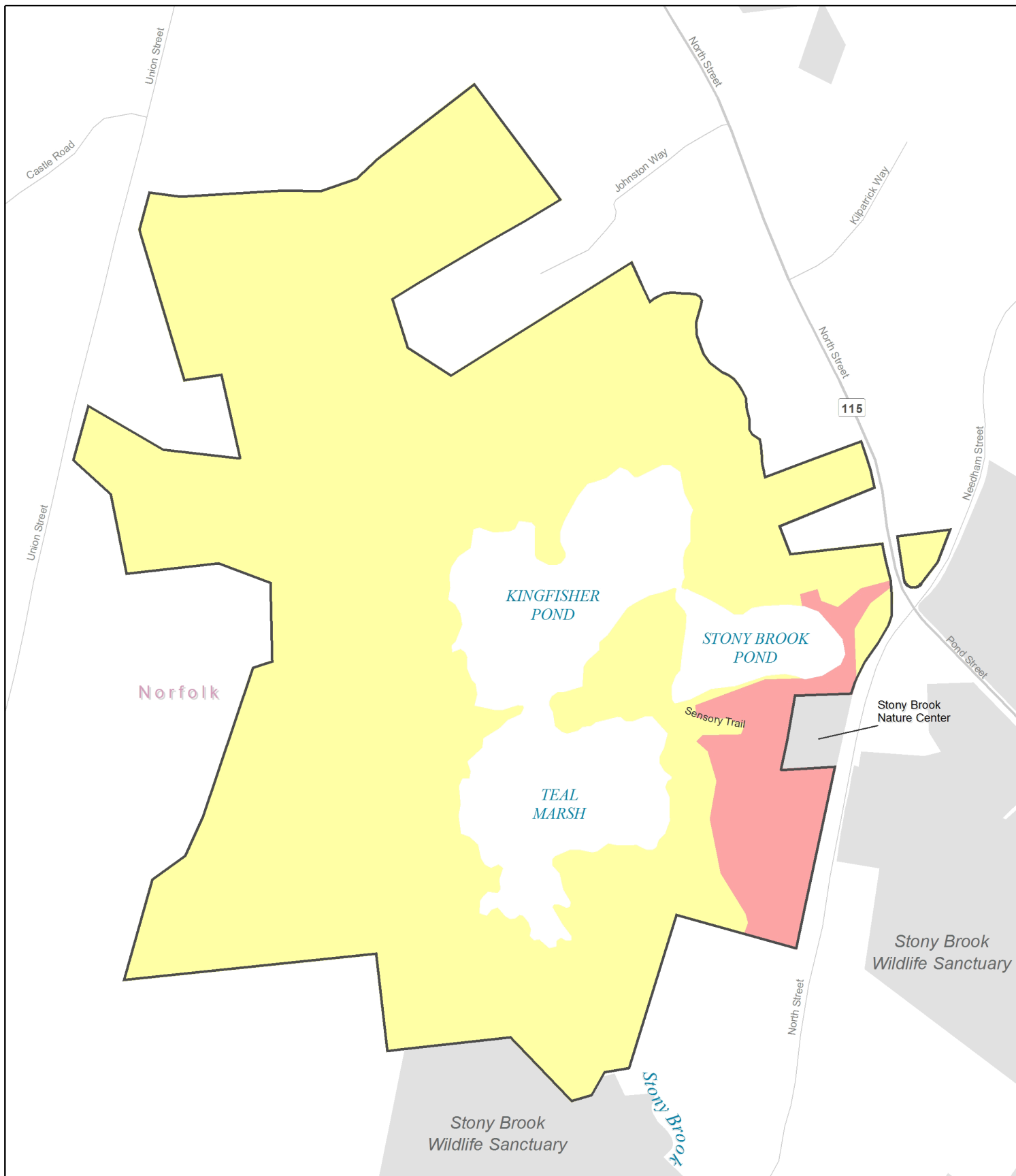
Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.

Table 7.9.1. Priority recommendations for Bristol Blake State Reservation.

Recommendation	Implementation^a
Address dam deficiencies, as identified in GZA GeoEnvironmental, Inc. (2012a).	D, R, V
Replace the existing boardwalk between Teal Marsh and Kingfisher Pond.	E, R
Work with Mass Audubon to control poison ivy in portions on the reservation in the immediate vicinity of the Nature Center, Sensory Trail, and Nature Play Area.	L, R
Install a gate on the fire and service road opposite 81 North Street, in accordance with the terms of the 2011 MOU.	E, R

a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.



- | | |
|--|--|
| <ul style="list-style-type: none"> Bristol Blake State Reservation Other Legal Interest - DCR Other Protected Open Space | <p>Land Stewardship Zoning</p> <ul style="list-style-type: none"> Zone 1 Zone 2 Zone 3 |
|--|--|

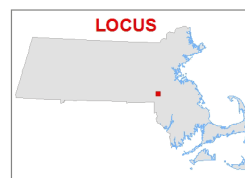
Bristol Blake State Reservation

Figure 7.9.1

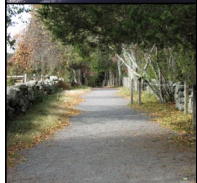
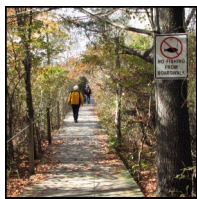
Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS, 2016

1,000 Feet



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Bristol Blake State Reservation

Bristol Blake State Reservation and Mass Audubon's Stony Brook Wildlife Sanctuary share a common history, and are managed cooperatively for wildlife preservation, conservation, and related educational purposes. A boardwalk and trails lead visitors around 18th century mill ponds, providing up close views of wildlife above and below the water. The Sensory Trail is an accessible interpretive trail for "all seasons, all senses, all people." It exposes visitors to the sights, sounds, smells, and textures of nature at the reservation and sanctuary.

Top Attractions

- Mass Audubon interpretive programming
- Boardwalk through marsh and ponds
- Sensory Trail
- Mass Audubon Fall Fair

Friends Group

- None

Partners & Permittees

- Mass Audubon

Conservation Opportunities

- Opportunities exist to enhance dam and dike maintenance through such actions as masonry repair, vegetation management, and the development of dam-related planning documents.
- Install a gate on the fire and service road along North Street to prevent unauthorized vehicle access.
- Work with Mass Audubon to control poison ivy in portions of the reservation in the immediate vicinity of the Nature Center, Sensory Trail, and Nature Play Area.

Park Inventory

Date Established: 1959

Landscape Designation
Parkland

Current Staffing

This park is managed by staff from F. Gilbert Hills State Forest.

Mass Audubon personnel staff the Stony Brook Sanctuary and its Nature Center.

Park Size (acres)

Total Area:	140.1
Wetlands:	79.7
Lakes and Ponds:	22.7

Rare Species

State-listed:	13
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Cultural Resources

Documented:	27
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Miles of Roads

Paved:	0.0
Unpaved:	0.0

Miles of Trails

Official:	1.0
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DCR Recreation Facilities

Accessible Trail:	1
Playground:	1



Hiking trail at Franklin State Forest. (See Appendix K for photo information.)

SECTION 8. FRANKLIN STATE FOREST

8.1. INTRODUCTION

Franklin State Forest is located in the towns of Franklin and Wrentham, near the intersection of Route 140 and Interstate 495. (Figure 8.1.1) It is located approximately 7 miles west of F. Gilbert Hills State Forest.

The forest was established in 1935 in order to create a “recreation and forest improvement center for the entire region” (Hills 1955). The Massachusetts Department of Conservation acquired several cut over properties in the vicinity of Forge Hill, Franklin. A CCC Camp (S-90) was established on site, and forest improvements (e.g., road construction) and recreation development soon followed. When the CCC camp closed a few months after opening, there was no longer a ready source of labor. Roads and trails soon fell into disrepair and forestry activities were conducted less frequently.

Two disjunct properties were added to the forest in the late 1960s and early 1970s; both are located along Miscoe Brook. (Figure 8.1) In 1965 a small parcel (i.e., 15.9 acres) was acquired on South Street and in 1972 a 133 acre parcel was acquired on West Street. Unlike the Forge Hill section of the forest, which was acquired for forest improvement and

recreation, the properties along Miscoe Brook were acquired to protect the brook and its floodplain.

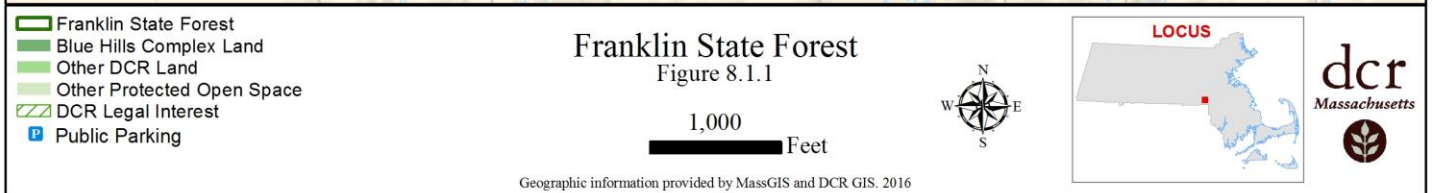
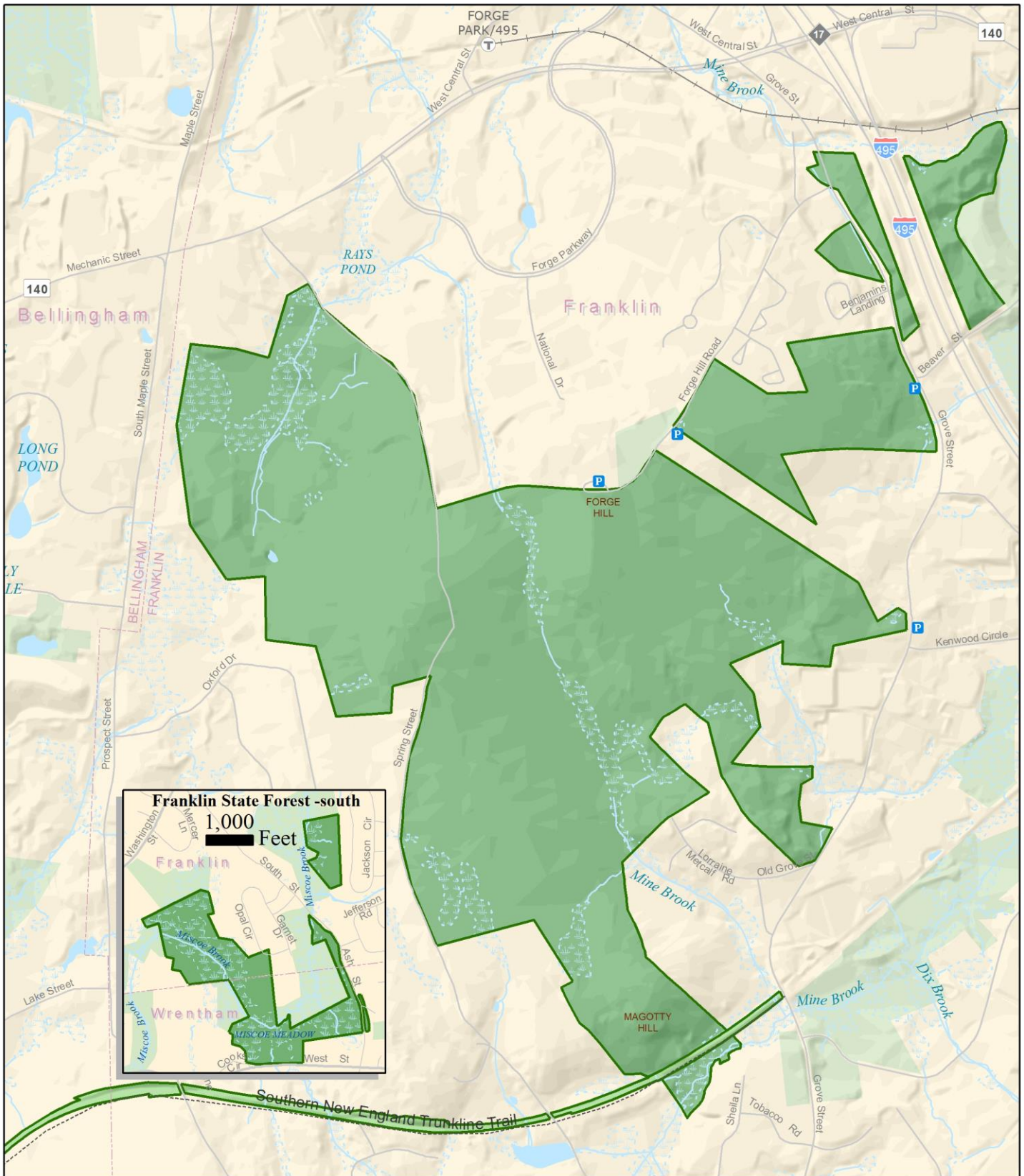
Franklin State Forest is best known for trail-based recreation including hiking, mountain biking, and the authorized use of Off-Highway Vehicles (OHVs). The forest’s physical, political, and regulatory attributes are summarized in Table 8.1.1.

Table 8.1.1. Physical, political, and regulatory settings of Franklin State Forest.

Setting	Name or Metric
Location:	Franklin, Wrentham
Area (acres)^a:	874.81
Perimeter (miles)^a:	17.47
Landscape Designation^b:	Parkland
Legislative Districts:	
House	9 th Norfolk 10 th Norfolk
Senate	Norfolk, Bristol, and Middlesex Second Middlesex and Norfolk
Regulatory Designation:	Priority Habitat

a. Calculated using a Geographic Information System (GIS).

b. For a summary of DCR’s landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.



Associated Properties. There is one associated property, it is:

- **Southern New England Trunkline Trail (SNETT).** The eastern end of the SNETT passes through Franklin State Forest. It is managed as part of the Blackstone Complex and will be addressed in that complex's RMP.

The Forest and Park Supervisor from F. Gilbert Hills State Forest manages, as time and resources permit, several DCR properties, including F. Gilbert Hills State Forest (Section 6), Bristol Blake State Reservation (Section 7), Franklin State Forest, Wrentham State Forest (Section 9), Rehoboth State Forest (Section 10), West Bridgewater State Forest (Section 11), and Bridgewater State Forest (Section 12). They also oversee DCR's interests in Angle Tree Monument Reservation (Section 1).

8.2. NATURAL RESOURCES

Physical Features

The main section of the forest has a row of three hills along its northern boundary, adjacent to Forge Hill Road. The highest of these, Forge Hill, has an elevation of 426 feet above sea level. The other two hills are unnamed, and have elevations of 412 and 403 feet. Elevation decreases in all directions from this row of hills. One additional hill, Magotty Hill (374 feet), is located adjacent to the SNETT near this section's southern boundary. The forest's lowest elevation, 216 feet, is realized along Mine Brook near Chilson Park. The South Street portion of the forest ranges from 285 to 255 feet in elevation. The West Street section ranges in elevation from 324 to 265 feet.

Water Resources

The occurrence of water resources varies geographically within the forest. The main section of the forest is hilly, with wetlands located at lower elevations along the forest's periphery; four unnamed streams originate in these wetlands and flow out of the forest. Mine Brook flows through the southernmost part of this section (i.e., south of the SNETT). Miscoe Brook passes through the West Street section of the forest and near the South Street section; associated wetlands are common in both sections. These and other water resources are summarized in Table 8.2.1.

Table 8.2.1. Water resources of Franklin State Forest.

Water Resource	Name or Metric
Watersheds:	Blackstone Charles
Aquifer:	
Medium Yield (acres)	22.16
High Yield (acres)	5.78
Rivers and Streams (miles)	1.27
Vernal Pools	
Certified (#)	1
Potential (#)	1
Wetlands (acres)	137.27
Lakes and Ponds (acres)	0.25

Less than 18% of the forest is susceptible to flooding. (Table 8.2.2) Areas along Mine and Miscoe Brooks are predicted to be inundated by 100-year floods. Wetlands that function as stream headwaters are predicted to be impacted by 500-year floods. There is no critical park infrastructure within the 100-year flood zone. Approximately 2,100 feet of multi-use trails are located in the 500-year flood zone; approximately 920 feet of which are open to OHVs.

Table 8.2.2. Potential impacts of flooding to Franklin State Forest.

Type of Impact	Acres	%
Flooding:		
100-year Storm	96.02	10.97
500-year Storm ^a	156.07	17.91

a. Cumulative value; includes 100-year storm impacts.



Predicted flooding at the main section of Franklin State Forest; the 100-year flood zone is represented in blue and light green, and the 500-year zone in orange. The forest is indicated in dark green, and its trails in red. (See Appendix K for photo information.)

Nearly all of the forest's parcels along Miscoe Brook are within the 100-year flood zone. A variety of private, municipal, and federally-owned properties are also located along this brook.

Rare Species

State-listed Species

Only one state-listed species, the eastern box turtle, is known from Franklin State Forest. (Table 8.2.3) It is associated with fields, dry and moist woodlands, and a variety of wetlands (NHESP 2015b).

Table 8.2.3. State-listed species of Franklin State Forest, as identified by the NHESP.

Species ^{a, b}	Type ^c	MESA ^d
Eastern box turtle	R	SC

- Presented alphabetically, by common name.
- Fact sheets are available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.
- Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.
- Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

Priority Habitat

There is little Priority Habitat (51.55 acres, 5.81%). It is entirely associated with the portion of the forest on the Franklin-Wrentham town line (i.e., former reforestation lot 224).

Vegetation

There has been no floristic inventory of this forest; information on its plants comes from ongoing forest monitoring efforts. (See Forests, below.)

Invasive Species

Invasive species have not been surveyed. One species was recorded in a CFI plot. (Table 8.2.4)

Table 8.2.4. Known invasive plants of Franklin State Forest.

Species ^a	Status ^b	Source ^c
Japanese barberry	I	1

- Presented alphabetically, by common name.
- Plants are classified as Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
- Information contained in this table was obtained from the following sources:
 - CFI data.

Natural Communities

Two natural communities have been identified. (Table 8.2.5) CFI data identify the upland areas as an Oak–Mixed Forest, but this has not been assessed to determine if it is consistent with the Mixed Oak Forest community type described by Swain and Kearsley (2011).

Table 8.2.5. Known natural communities of Franklin State Forest.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Red Maple Swamp	P	S5	1
Shrub Swamp	P	S3	1

- Classified according to Swain and Kearsley (2011).
- E = Estuarine, P = Palustrine, T = Terrestrial.
- The NHESP ranks communities from most rare (S1) to the most common (S5).
- Information contained in this table was obtained from the following sources:
 - DEP Wetlands (1:12,000) data layer.

Forests

Most of Franklin State Forest (733.49 acres, 83.85%) is covered in upland forest. As indicated by CFI data, these forests have a variable mixture of black, northern red, and white oak in the canopy with lesser amounts of white pine and red maple. Understory species include black huckleberry, low-bush blueberry, American beech, red maple, and white pine in the drier areas. In moister areas the understory also includes species commonly associated with wetlands such as sweet pepperbush, red maple, ferns, and high-bush blueberry. The age of mixed oak stands in CFI plots ranged from 65 to 72 years and Site Index values ranged from 49 to 79. Gypsy moth and white pine weevil damage is common.

The forest's red maple swamps are dominated by red maple with black gum, yellow birch, sugar maple, white pine, and black and white oaks present in lower numbers. The understory is diverse and includes such plants as ferns, sweet pepperbush, azalea, highbush blueberry, skunk cabbage, gold thread, sedges, viburnums, partridgeberry, and sassafras. In the drier parts of the red maple swamp upland species, such as white pine, black oak, black

cherry, and American hazelnut are also present. The age of red maple swamp stands in CFI plots ranged from 70 to 85 years and site index values ranged from 53 to 59.

Wildlife

Few formal surveys have been conducted. The forest is identified as a birding hotspot by eBird and as of December 2016, 23 species have been recorded (eBird 2012). This information is preliminary and provides only an incomplete picture of the forest's birds. Information is lacking on other taxa.

8.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Franklin State Forest is presented in Table 8.3.1. Cultural Resources are identified in Table 8.3.2. There are no archaeological resources listed by the MHC for this forest.

Table 8.3.1. Significant events in the history of Franklin State Forest.

Year(s)	Events
1935	The Department of Conservation begins acquiring options to purchase land in the Forge Hill Area of Franklin. By summer, acquisitions begin in order to establish a "recreation and forest improvement center for the entire region" (Hills 1955a).
1935	CCC Camp S-90 established on east side of forest, at the end of Beaver Street.
1938	The CCC created Forge Pond picnic grove is damaged by a hurricane; it is never reopened.
1952	Forest acreage "about 869 acres" (Hills 1952).
1965	The Department of Public Works takes 18.5 acres (Parcel Number 1-27) for the construction of Route 495, which opens in 1969.
1965	A 15.9 acre parcel on South Street, along Miscoe Brook, is added to the forest.
1972	A 133 acre parcel on West Street, along Miscoe Brook, is acquired.
1989	A 15.7 acre parcel on Forge Hill Road is added to the forest.
1992	The Department of Environmental Management acquires 36.4 acres of land south of the main section of the state forest. This land, which includes Magotty Hill, establishes a connection between the forest and the Southern New England Trunkline Trail.

Table 8.3.2. Cultural resources of Franklin State Forest.

Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Franklin State Forest - CCC Camp	LA	1935	-	L	-	-	FRN.N	1, 2
Franklin State Forest - CCC Camp Road	ST	1935	4	M	-	-	FRN.909	2
Franklin State Forest - CCC Camp Water Supply	ST	1935	6	L	-	-	FRN.910	2
CCC Water Hole	ST	1935	4	M	-	-	-	3
Pond Family Farm	LA	ca. 1700	6	L	-	-	-	1, 2
Pond Farm Well	ST	ca. 1701	5	L	-	-	-	2
Moses Family Farm	LA	ca. 1701	-	L	-	-	-	1
New York & New England Rail Roadⁱ	LA	1847	-	L	-	-	-	2
South Franklin Local Historic District	LHD	18 th century–present	-	H	-	-	FRN.E	-
Additional Resources^j								
Indian Site	AR	-	-	-	-	-	-	4
Trail - Colonial (3)	LA	-	-	-	-	-	-	-
Road - West Street	ST	-	-	-	-	-	-	2
Road - South Street	ST	-	-	-	-	-	-	2
Road - Spring Street	ST	-	-	-	-	-	-	2
Colonial Cottage (2)	AR	-	-	-	-	-	-	3
Old House Site (3)	AR	-	-	-	-	-	-	3
Old mill site and forge	AR	-	-	-	-	-	-	3

- a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- b. Date of construction provided, when known.
- c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- d. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- f. The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- g. Massachusetts Historical Commission inventory number; does not include Historic Archaeology numbers.
- h. The following guidance is offered for the ongoing maintenance of these cultural resources:
1. Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).
 2. Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).
 3. Refer to Water holes BMP (DCR n.d.j).
 4. Refer to Archaeological Features BMP (DCR n.d.g)
- i. The railroad bed (i.e., the SNETT) is not in Franklin State Forest; it is an inholding that passes through the forest.
- j. Documented through the 1984/1985 Cultural Resources Evaluation Project but not yet field verified or confirmed.

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

Franklin State Forest has not been surveyed archaeologically, and no pre-Contact sites have been recorded. Multiple pre-Contact sites are recorded surrounding a lake to the west of the forest and within a wetland to the east of the forest, both within one mile of the property. These sites date from the Early Archaic 9,000 years B.P. through to the Late

Woodland 450 B.P. Franklin State Forest has a high archaeological potential for pre-Contact sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

There are no recorded post-Contact archaeological sites within Franklin State Forest. Background research will determine if the forest is sensitive for locating historic period archaeological sites.

HISTORIC RESOURCES

Franklin State Forest is a wooded area that has seen minimal development throughout its history. Considering the forest's size, settlement of land and the introduction of infrastructure were kept to a minimum when compared to surrounding areas. The development and the introduction of infrastructure that did occur are associated with the following time periods.

- **18th and 19th Century Agrarian Life;** resources from this era are associated with the conversion of wooded areas into farms for agriculture and livestock.
- **18th and 19th Century Infrastructure;** resources from this era are associated with the early development of lands for purposes of travel
- **19th Century CCC/Department of Conservation/DEM Development;** resources from this era are associated with the development of wooded or agrarian lands into recreational facilities for the public.

Historic Landscapes

CCC Camp S-90. In 1935, the State began acquiring land for Franklin State Forest. That same year, the CCC established Camp S-90 along Grove Street, Franklin, within the forest. This camp once contained multiple buildings that housed men whose mission was to improve the nation's publically owned forests and parks. It shut down before any major recreation infrastructure was created, and the only two remaining structures are a road and a concrete cistern (i.e., water supply). Multiple building footprints are still visible; their level and squared appearance standing in stark contrast to the surrounding rugged terrain. The historic integrity for this resource is low. A water hole, originally intended to function as an artificial pond to hold water for firefighting, is located off Forge Hill Road.



This water hole at Franklin State Forest is believed to have been constructed by the CCC. The stone wall visible in the foreground and on the left side of this photo once encircled the entire water hole. (See Appendix K for photo information.)

Pond Family Farm. This landscape, which was once the location for a large dairy farm, was owned for multiple generations by the Pond Family. It is located in the northwest corner of the park, near South Maple Street. The farm's well is the only known remaining resource.

Moses Family Farm. This home site is located just west of the residential neighborhood on Lorraine Metcalf Road. A cellar hole is believed to be the only remaining resource; however, this information has not been field verified.

New York & New England Rail Road. This rail road was established in the mid-1800s; 90 years before the state forest. Throughout most of its history, the forest did not connect to the rail road and was little impacted by its presence. In 1992, the forest expanded southward to include both the north and south shoulders of the railroad bed. The historic rail road bed is now part of the SNETT. Although the rails and ties are gone, the railroad bed and grade cuts remain visible. The forest abuts the SNETT and the railroad bed.

South Franklin Local Historic District. Two of the forest's parcels fall partially or wholly within the South Franklin Local Historic District. This district is significant for its abundance of 18th and early 19th century residential buildings clustered around the main thoroughfares of Washington and Union streets. Although there are no historic structures located within the forest's parcels, their proximity to colonial housing stock suggests that they have been used by townspeople dating back to the early to mid-18th Century.

Buildings

There are no historic buildings.

Structures

There are no historic structures that are not associated with the CCC Camp S-90 historic landscape.

Objects

There are no known historic objects.

8.4. RECREATION RESOURCES

Recreation at Franklin State Forest is primarily trails based. There are few recreation resources that are not associated with the forest's trails. The following recreation activities take place:

- Bicycling, mountain
- Dog walking, on leash
- Geocaching (8 caches in the Forge Hill section as of December 2016)
- Hiking
- Hunting
- Nature study/Photography
- OHV use, dirt bikes only
- Running/Jogging
- Skiing, cross-country

Franklin State Forest is one of eight DCR parks where OHVs use is authorized; it is one of only four in eastern Massachusetts. The King Philip Trail Riders, a club that promotes off-road trail riding, conducts group motorcycle events under a one-year special permit.

Despite the provision of trails authorized for OHV use, and despite a productive relationship with the regional trail riding organization, illegal OHV use continues to take place in the forest. As a result, environmental damage has occurred in portions of the forest not intended for OHV use. The greatest illegal use and damage appears to be in the portion of the forest between Grove Street and Route 495.



The Forest and Park Supervisor from F. Gilbert Hills State Forest stands in an eroded trail created by illegal OHV use at Franklin State Forest. (See Appendix K for photo information.)

8.5. INFRASTRUCTURE

Property Boundary

The Forge Hill section of the forest generally lies within an area delimited by Route 140 to the North, Route I-495 to the east, Washington Street to the South, and Prospect Street, Franklin/South Maple Street, Bellingham to the west. Industrial, commercial, and high-density residential development borders the forest to the north, along Route 140. To the east is industrial development associated with Grove Street. This intensive development is associated with the nearby exchange on I-495. To the south and west is unprotected open space and limited residential development. The portion of the forest east of I-495 abuts Town of Franklin municipal property. The boundaries of the Forge Hill Section are marked; most recently in 2015.

In December, 2016, the Town of Franklin submitted an Environmental Notification Form (ENF) for an Article 97 land disposition with mitigation. The project includes the transfer of 4.71 acres of forest land to the town in order to facilitate proper closure of the Beaver Street landfill. In exchange, the town will provide the Commonwealth with 29.3 acres of undeveloped land abutting the Forge Hill Section of the forest (Nutting 2014; ENF EOE# 15619). As of this writing, no legislation has been filed regarding this matter. However, the town has proposed that the transfer take place in 2017.

The South Street section of the forest is bordered by U.S. Army Corps of Engineers property to the north. To the east, south, and west is residential development primarily constructed during the 1990s. The boundaries of this section are not marked.

The West Street section is bounded on the north by a residential development constructed in the late 2000s and by open space owned by the U.S. Army Corps of Engineers and Town of Franklin. To the east and south is low density residential development. Agricultural lands and other unprotected open space abut the forest's west side. Boundary markings in this section are sparse or absent.

No easements were identified during the preparation of this RMP.

Buildings and Structures

There are no non-historic buildings. Three wooden bridges are associated with the trails system. (Table 8.5.1)

Roads

There are no public or administrative roads in the forest. The forest roads, including those constructed or expanded by the CCC, are now classified as trails. Information on the forest's trails is presented elsewhere in this chapter.

Although the forest's roads have become trails, and are now largely unnamed, a 1955 plan (Hills 1955a) identified the following roads as being in and around the forest: Camp Road, CCC Road, Crooks Road, Ellsworth Road, Forge Hill Road, Pine Road, Pond Road, and Spring Street. Of these, only Spring Street and Forge Hill Street (sic) are identified on a 1951 map of the forest (Hills 1951). Locations of the other named roads are unknown at this time.

Table 8.5.1. Non-historic buildings and structures of Franklin State Forest.

Location and Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
Forge Hill Area				
Trail bridges (3)	-	3-4	-	-

a. Date of construction provided, when known.

b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

Parking

There is no formal parking lot. Parking for the Forge Hill portion of the forest is available at four locations. (Table 8.5.2) A paved parking lot, associated with the Town of Franklin's water tank at 781 Forge Hill Road, functions as the forest's main lot. During the summer months, the adjacent YMCA uses the area, under an agreement with the town, temporarily eliminating parking at this location. Roadside parking is available on Forge Hill Road opposite the entrance to the Hockomock YMCA, near the intersection of Grove Street and Kenwood Circle, and at the trailhead at the intersection of Grove and Beaver Streets. There is no parking for other sections of the forest.

Table 8.5.2. Number of public parking spaces, by location and type, at Franklin State Forest.^a

Location	HP	Restricted	Other	Total
71 Forge Hill Road ^b	0	0	13	13
Forge Hill Road – Opposite YMCA ^b	0	0	4	4
Grove Street – Opposite Beaver Street	0	0	2	2
Grove Street ^b	0	0	4	4
Total	0	0	23	23

a. Based on the number of potential 9-foot-wide spaces.

b. This lot is not on DCR property.



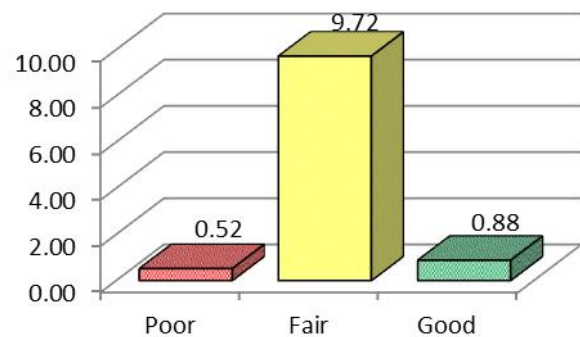
This municipal parking area (right) at the top of Forge Hill is the main parking area for visitors to Franklin State Forest. During the summer, this area is used by the YMCA for its summer camp and is not available to park visitors. (See Appendix K for photo information.)

Trails

There are 11.12 miles of official trails; all are multi-use (Figure 8.5.1). Approximately 7.81 miles of these trails are open to motorized use (i.e., motorcycles). A one-mile-long Healthy Heart Trail loop begins and ends at the Grove Street trailhead.

An additional 1.82 miles of unauthorized user-created trails have also been documented.

Figure 8.5.1. Condition and length (in miles) of official trails at Franklin State Forest.^a



Several roads that pre-date the creation of the forest, or were constructed or expanded by the CCC, are located within the Forge Hill section and are now part of the trails system. They are intended to provide vehicle access for fighting fires. However, most are no longer accessible to emergency vehicles. Erosion and vegetative growth have made them impassible to anything but pedestrians, cyclists, and OHV riders.

An initial assessment of the forest's trails (DCR 2015) identified the following five management issues:

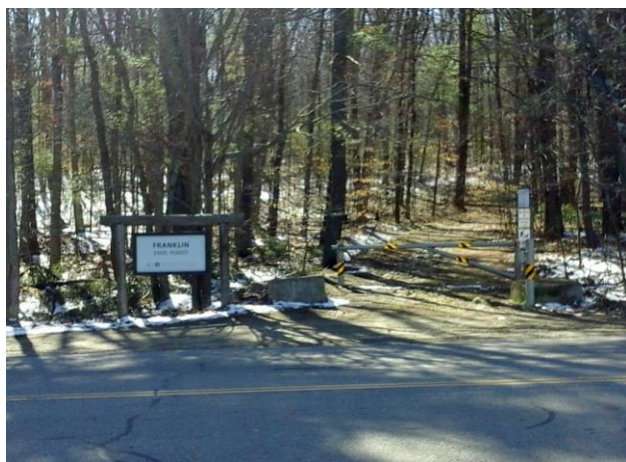
- Poor separation and distinction between trails open to motorized use and those closed to motorized use
- Lack of clear signage and markings to distinguish trails open to motorized use from those closed to motorized use
- A confusing and inaccurate trails map
- Numerous access points from adjacent properties
- Most trails are classified as being in "Fair" condition

Current trail markings are primarily to indicate which trail segments are open to OHV use and which are not.

Some of the forest's trails connect to adjacent properties. A segment of multi-use trail passes over Magotty Hill and connects to the SNETT. There is no trailhead or intersection sign at this intersection. Trail segments also extend from the forest, across private lands, to connect to Spring Street, West Central Street, and Benjamin Landing Lane in Franklin, and South Maple Street in Bellingham. Other segments leave the forest, cross private land, and then reconnect to the forest's trails.

Kiosks and Signs

The forest's Main Identification Sign is located at the intersection of Grove and Beaver streets, Franklin; there is no kiosk. A sign identifying OHV regulations is located at the trailhead on Forge Hill. Map boards are located along the OHV loop on Forge Hill, near the Main Identification Sign at the intersection of Grove and Beaver streets, and near the forest's boundary with Lorraine Metcalf Road, Franklin. An identification sign bearing the legend "Southern New England Trunkline Trail Franklin State Forest" is located on the SNETT near Grove Street; it is not on Franklin State Forest.



The forest's Main Identification Sign; limited parking is available on the road shoulder in front of this sign. (See Appendix K for photo information.)

Iron Ranger

An iron ranger is located at the Grove Street trailhead; it was installed in July 2016.

Memorials and Markers

There are no known memorials and markers. However, the forest has not been inventoried for these markers so some may be present.

8.6. INTERPRETATION

There is no regular interpretive programming, and there are no interpretive panels. Occasional programming is provided by the Visitors Services Supervisor from Borderland State Park.

8.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

This property is unstaffed. The Forest and Park Supervisor from F. Gilbert Hills is responsible for its operation and maintenance.

Partnerships and Volunteers

The Foxborough-Wrentham-Franklin State Forests Advisory Council was formed during the preparation of the GOALS Plan (DEM 1989). It remains active, and provides advice and assistance on a variety of topics and projects. The King Philip Trail Riders is a motorcycle club that promotes off-road riding and works to ensure the continued availability of off-road recreational opportunities. Club members individually and collectively ride at Franklin State Forest and help maintain its trails.

Safety

The Franklin and Wrentham fire departments provide fire response and emergency services. Additional fire response is provided by personnel from DCR's Fire District 4, which is based at F. G. Hills. Municipal police departments, the Massachusetts State Police (Station H-3, Foxborough), and the Massachusetts Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

There are no Conservation Trust Fund revenues dedicated to Franklin State Forest.

Retained Revenue

The park does not generate or retain revenue; there are no access or parking fees.

Other Revenues

There are no other revenues.

8.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 8.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of Franklin State Forest. Legal agreements unique to the reservation are listed in Table 8.8.1.

Table 8.8.1. Key legal agreements for Franklin State Forest.

Party and Subject of Agreement	Type ^a	Expiration Date ^b
King Philip Trail Riders Use of off-road vehicles in F. Gilbert Hills, Franklin, and Wrentham State Forests.	A	2003

- a. Agreement types include: A = Memorandum of Agreement; C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.
- b. Year that agreement expires.

Key planning documents are identified in Table 8.8.2.

Table 8.8.2. Key management and guidance documents for Franklin State Forest.

Author and Document	Year
Department of Environmental Management F. Gilbert Hills State Forest: Guidelines for Operations and Land Stewardship.	1989
Gannett Fleming, Inc. Environmental Audit Report: Franklin State Forest, Franklin, Massachusetts.	1998

Annual Maintenance

Ongoing management practices are typically performed on an as needed basis. These activities are identified in Table 8.8.3.

Table 8.8.3. Annual cycle of management activities at Franklin State Forest.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Litter removal - Trails	E7	E7	AN	AN
Pruning - Trees and shrubs	AN	AN	AN	N/A

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

Natural Resources

Water Resources

There are no water management activities.

Rare Species

There are no rare species monitoring or management activities.

Invasive Species

There is no monitoring or management of invasive plants.

Vegetation

There are six CFI plots; they were last monitored in 2010.

Wildlife

MassWildlife stocks trout in Miscoe Brook in Franklin once each the spring. Under DCR's Forest and Park Regulations (302 CMR 12.11), fishing and hunting is allowed in the forest.

Cultural Resources

There are no management practices unique to this forest.

Recreation Resources

The F. Gilbert Hills Forest and Park Supervisor, with the assistance of volunteers, maintains trails and trail markings on an as needed basis.

Infrastructure

Boundary

The Forest and Park Supervisor from F. Gilbert Hills and the Regional Forester maintain the boundaries.

Buildings and Structures

There are no buildings to repair or maintain.

Roads

There are no ongoing road maintenance activities.

Parking Areas

Because parking is on adjacent Town of Franklin property, the DCR does not maintain the parking area.

Trails

The forest's motorcycle trails are maintained by volunteers from the King Philip Trail Riders. Motorcyclists are restricted to an approximately eight-mile-long designated OHV trail. Their riding season extends from May 1 through the last Sunday in November. Mountain bikes are allowed on trails designated for their use, as well as OHV trails, on a year-round basis. Pedestrians are allowed on all trails year-round. Use of OHV trails is unidirectional for all user groups; trail markings indicate the direction of travel.

Kiosks and Signs

The Forest and Park Supervisor from F. Gilbert Hills maintains signs and map boards.

8.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Franklin State Forest. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 8.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 8.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

- No sections of Franklin State Forest have been designated Zone 1.

Zone 2

- All areas not specifically designated as Zone 3.

Zone 3

The following portions of Franklin State Forest have been designated Zone 3.

- A 30 by 300 foot section along the south shoulder of Forge Hill Road, east of the municipal parcel currently used for forest parking; for potential development of a roadside parking area.

Significant Feature Overlay

An OHV trail management significant feature overlay was developed for the forest. This overlay follows the centerline of trails currently open to OHVs, and extends outward to the limits of the pre-existing road bed or trail (i.e., it does not include areas expanded by OHV use.) Special trail management activities are associated with the trails in this overlay.

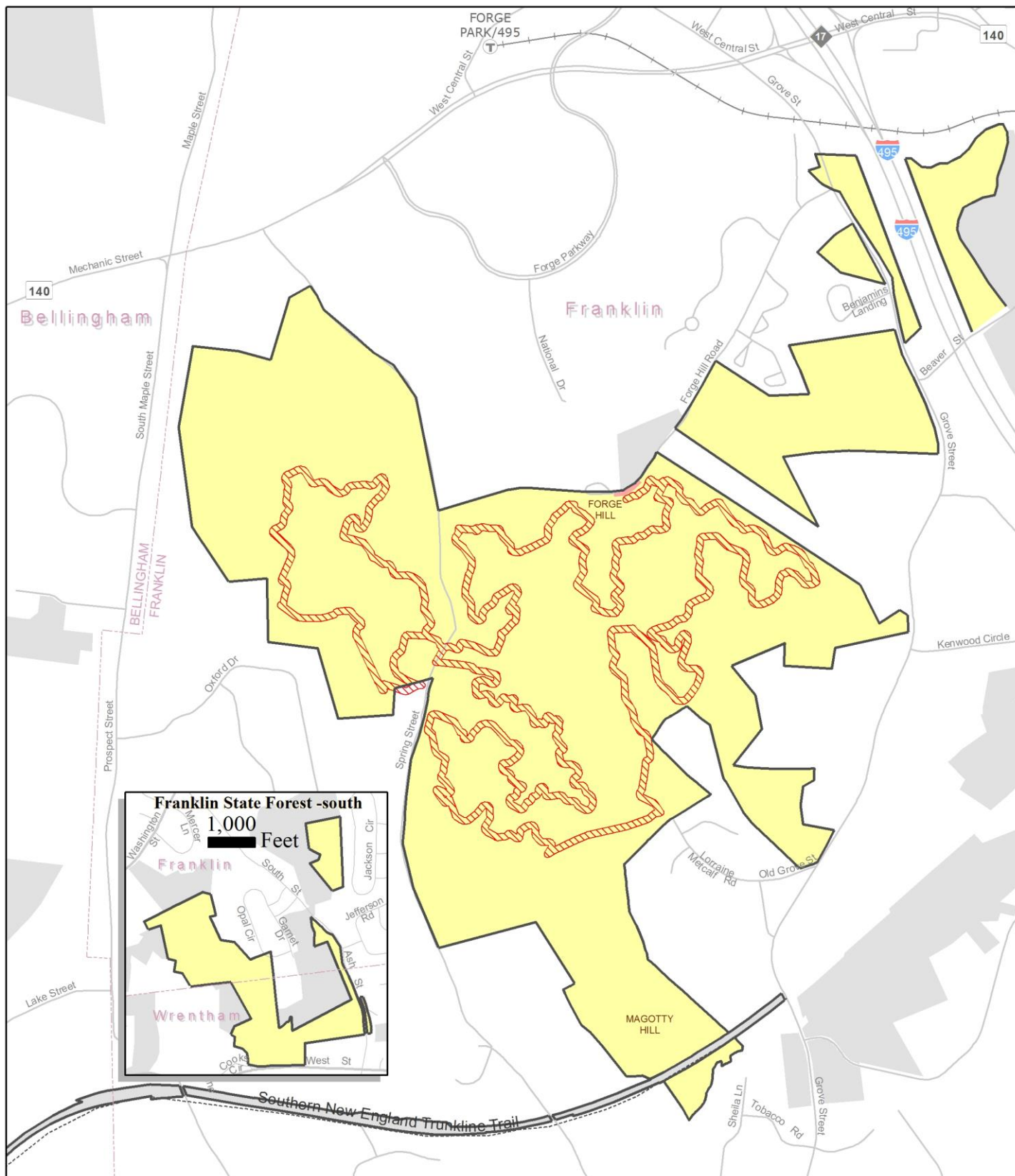
Management Recommendations

Three priority management recommendations were developed for Franklin State Forest. (Table 8.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.



- Franklin State Forest
- Other Legal Interest - DCR
- Other Protected Open Space
- Land Stewardship Zoning
 - Zone 1
 - Zone 2
 - Zone 3
- OHV Significance Overlay

Franklin State Forest

Figure 8.9.1

Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS, 2016



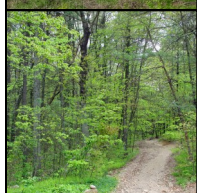
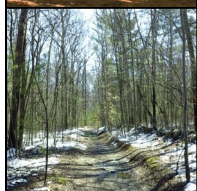
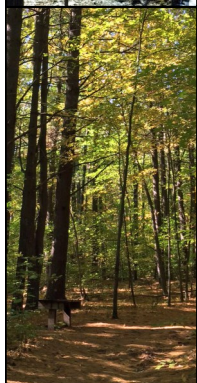
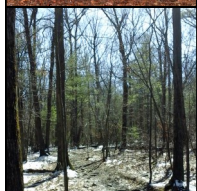
1,000 Feet

Table 8.9.1. Priority recommendations for Franklin State Forest.

Recommendation	Implementation ^a
Implement recommendations identified in <i>Rapid Assessment and Trail System Recommendations</i> (DCR 20015).	P, R, V
Reopen main trails (i.e., fire roads) to emergency vehicles by clearing brush and repairing heavily eroded areas.	F, R
Establish an updated agreement with the King Philip Trail Riders for the use of off-road vehicles in F. Gilbert Hills, Franklin, and Wrentham State Forests.	L, R, V

- a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.

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Franklin State Forest

Franklin State Forest is best known for its trail-based recreation. It is one of four DCR parks in eastern Massachusetts where off-highway vehicles (OHVs), trail bikes only, are allowed. Hikers, mountain bikers, and equestrians share these trails with OHVs, and also use a network of OHV-free trails. The forest is open for hunting.

Top Attractions

- OHV trails
- Hunting
- Hiking/Biking trails

Friends Group

- None

Partners & Permittees

- Foxborough-Wrentham-Franklin State Forests Advisory Council
- King Philip Trail Riders

Conservation Opportunities

- Reopen main trails/fire roads to emergency vehicles by clearing brush and repairing heavily eroded areas.
- Implement recently identified trail system recommendations to improve signs, markings, and maps; increase separation of motorized and non-motorized trails; and close access points from adjacent properties.

Park Inventory

Date Established: 1935

Landscape Designation
Parkland

Current Staffing

This park is managed by staff from F. Gilbert Hills State Forest.

Park Size (acres)

Total Area:	874.8
Wetlands:	137.3
Lakes and Ponds:	0.2

Rare Species

State-listed:	1
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Cultural Resources

Documented:	9
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Miles of Roads

Paved:	0.0
Unpaved:	0.0

Miles of Trails

Official:	11.1
OHV:	7.8

DCR Recreation Facilities

This is a natural area, DCR does not maintain any constructed recreation facilities at this park.



Forest roads wind through the rocky hills of Wrentham State Forest. (See Appendix K for photo information.)

SECTION 9. WRENTHAM STATE FOREST

9.1. INTRODUCTION

Wrentham State Forest is located in the towns of Wrentham and Plainville, west of the intersection of Route 1 and Interstate 495. (Figure 9.1.1) It is approximately one mile southwest of F. Gilbert Hills State Forest.

In 1934, and again in 1936, the Commissioner of Conservation issued orders of taking for lands in the Towns of Wrentham and Plainville, for the purpose of establishing a state forest. These lands, which were “most all cut over before purchase and some burned over at various times” (Hills 1955*b*), became Wrentham State Forest.

The forest was established at a time when the CCC, which was based at nearby Foxborough State Forest (i.e., F. Gilbert Hills State Forest; Section 6), was actively developing wildlife and recreation projects in the area (e.g., Hills 1955*b*). The same CCC crews also worked at Franklin State Forest (Section 7), which was established at the same time as Wrentham State Forest. The CCC’s efforts were short-lived in the area, with the camp closing shortly after the forests were created. However, the relationship among these forests, developed during the time of

the CCC, continues to this day, with a Foxborough-based staff managing all three properties.

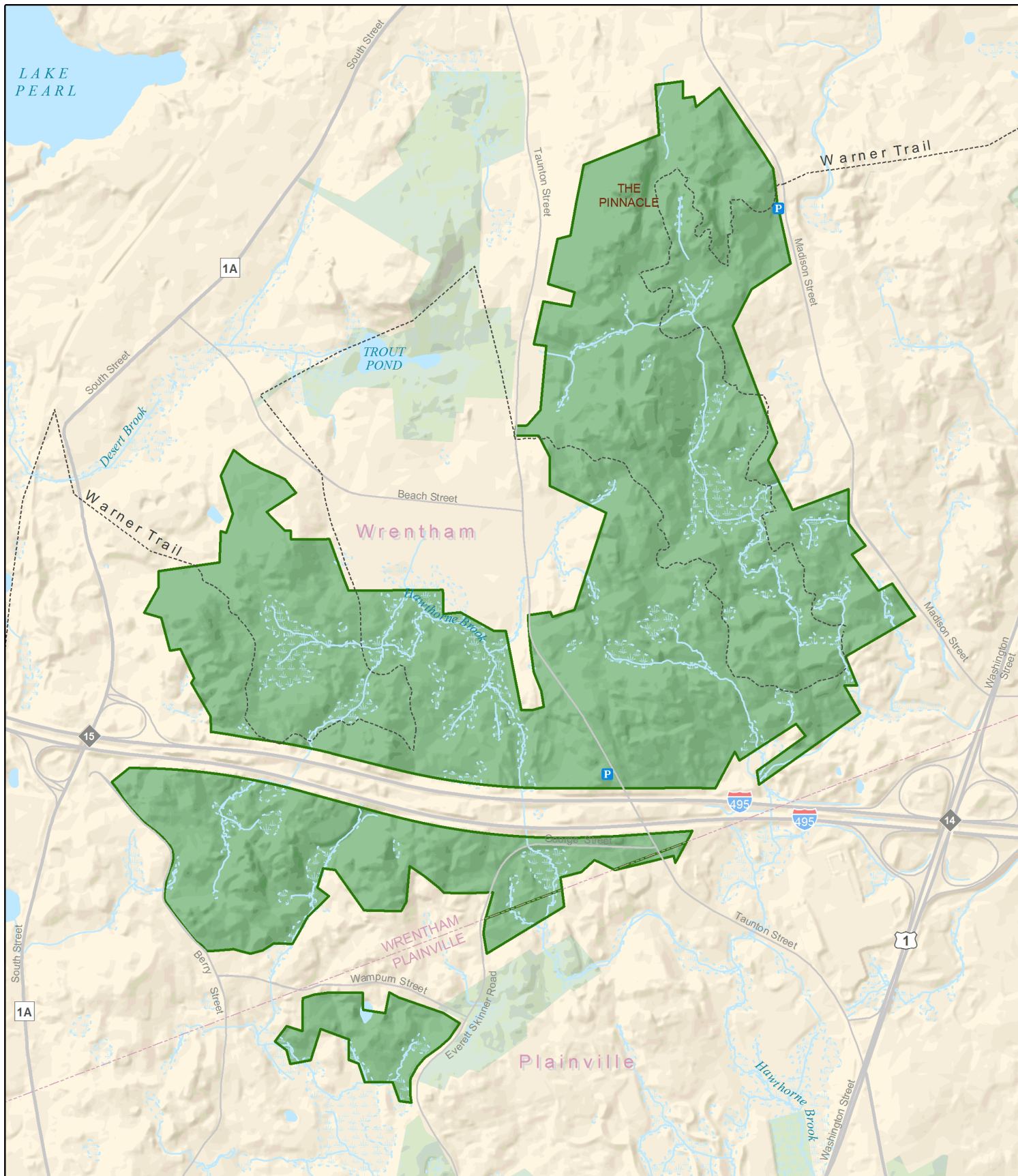
Wrentham State Forest is best known for trail-based recreation including hiking, mountain biking, and the authorized use of Off-Highway Vehicles (OHVs). The forest’s physical, political, and regulatory attributes are summarized in Table 9.1.1.

Table 9.1.1. Physical, political, and regulatory settings of Wrentham State Forest.

Setting	Name or Metric
Location:	Plainville, Wrentham
Area (acres)^a:	967.67
Perimeter (miles)^a:	13.24
Landscape Designation^b:	Parkland
Legislative Districts:	
House	9 th Norfolk
Senate	Norfolk, Bristol, and Middlesex
Regulatory Designations:	Priority Habitat Outstanding Resource Waters - Wading River

a. Calculated using a Geographic Information System (GIS).

b. For a summary of DCR’s landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

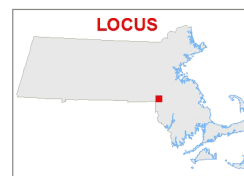


- Wrentham State Forest
- Blue Hills Complex Land
- Other DCR Land
- Other Protected Open Space
- DCR Legal Interest
- Public Parking

Wrentham State Forest

Figure 9.1.1

1,000
Feet



Geographic information provided by MassGIS and DCR GIS. 2016

Associated Properties. There are no associated properties.

The Forest and Park Supervisor from F. Gilbert Hills State Forest manages, as time and resources permit, several DCR properties, including F. Gilbert Hills State Forest (Section 6), Bristol Blake State Reservation (Section 7), Franklin State Forest (Section 8), Wrentham State Forest, Rehoboth State Forest (Section 10), West Bridgewater State Forest (Section 11), and Bridgewater State Forest (Section 12). They also oversee DCR’s interests in Angle Tree Monument Reservation (Section 1).

9.2. NATURAL RESOURCES

Physical Features

There are three sections to the forest: the section north of I-495; the section immediately south of I-495; and a parcel south of Wampum Street, Plainville. The two sections adjacent to I-495 were once a single large section; they were divided by land takings for the highway’s creation.

The main section of the forest (i.e., north of Route 495) is bisected by Taunton Road. East of Taunton Road the forest is hilly, with elevation generally increasing from south to north. Elevations are lower along stream channels, and the lowest elevation east of Taunton Road (236 feet above sea level) occurs where a branch of Hawthorne Brook exits the forest. The highest elevation is at the Pinnacle (approximately 433 feet), which is one of seven peaks east of Taunton Road in excess of 400 feet. On a clear day, the Pinnacle offers views of the Blue Hills Reservation, downtown Boston, and beyond. West of Taunton Road elevations are generally lower, with hills along the western and southern border. Only one hill exceeds 400 feet in elevation. The lowest elevation, approximately 265 feet, occurs where Hawthorne Brook passes under Route 495. South of the highway are a number of small hills; elevation ranges from 344 to 265 feet. Topography is gentler in the Wampum Street parcel; elevations range from approximately 285 to 245 feet.



Scenic view from the Pinnacle; on a clear day Gillette Stadium, the Blue Hills Reservation (Section 2), and downtown Boston are visible from this location. (See Appendix K for photo information.)

Water Resources

Surface waters are widely distributed throughout the forest, and are concentrated at low elevations. Streams flow southward; most are headwaters of Hawthorne Brook. Unnamed streams along the forest’s eastern edge drain toward Lake Mirimichi in Plainville. An unnamed stream originates west of Taunton Road and south of Route 495; it flows into Old Mill Brook. Streams in the Wampum Street parcel also flow into Old Mill Brook. The pond in this parcel was historically used for watering cows. All of the forest’s wetlands and streams are within the Taunton River Watershed. These and other water resources are summarized in Table 9.2.1.

Table 9.2.1. Water resources of Wrentham State Forest.

Water Resource	Name or Metric
Watersheds:	Charles Taunton
Aquifer:	
Medium Yield (acres)	0.18
High Yield (acres)	0.00
Rivers and Streams (miles)	1.80
Vernal Pools	
Certified (#)	6
Potential (#)	29
Wetlands (acres)	91.70
Lakes and Ponds (acres)	0.46



One of the forest's many vernal pools. (See Appendix K for photo information.)

No portion of the forest is susceptible to floods. (Table 9.2.2)

Table 9.2.2. Potential impacts of flooding to Wrentham State Forest.

Type of Impact	Acres	%
Flooding:		
100-year Storm	0.00	0.00
500-year Storm ^a	0.00	0.00

a. Cumulative value; includes 100-year storm impacts.

Rare Species

State-listed Species

Two state-listed species are known from Wrentham State Forest. (Table 9.2.3) The eastern box turtle is associated with fields, dry and moist woodlands, and a variety of wetlands (NHESP 2015b). Appropriate habitat exists throughout nearly the entire forest. In contrast, the oak hairstreak is associated with dry, open oak woodlands on rocky uplands (Nelson 2012).

Table 9.2.3. State-listed species of Wrentham State Forest, as identified by the NHESP.

Species ^{a, b}	Type ^c	MESA ^d
Eastern box turtle	R	SC
Oak hairstreak	I	SC

a. Presented alphabetically, by common name.

b. Fact sheets are available at:

<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.

c. Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.

d. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

Priority Habitat

There are approximately 328.43 acres of Priority Habitat (Polygon PH 312); it is restricted to the portion of the forest east of Taunton Street and north of I-495.

Vegetation

There has been no floristic inventory of this forest; information on its plants comes from ongoing forest monitoring efforts. (See Forests, below.)

Invasive Species

Invasive species have not been surveyed. Two species were incidentally observed during the preparation of this plan. (Table 9.2.4)

Table 9.2.4. Known invasive plants of Wrentham State Forest.

Species ^a	Status ^b	Source ^c
Japanese knotweed	I	1
Oriental bittersweet	I	1

a. Presented alphabetically, by common name.

b. Plants are classified as being Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).

c. Information contained in this table was obtained from the following sources:

1. Incidentally observed by RMP Planner.

Japanese maple has expanded from adjacent residential landscapes into the forest (Collins 2010). This species is not recognized by MIPAG (2005) as either Invasive or Likely Invasive.

Natural Communities

Information on the forest's natural communities is incomplete. (Table 9.2.5) CFI data identify the upland areas as Oak-Mixed Forest. However, this has not been assessed to determine if it is consistent with the Mixed Oak Forest community type described by Swain and Kearsley (2011). Species composition and vegetative structure in some of the upland areas suggest that the Black Oak-Scarlet Oak Forest/Woodland community type may also be present.

Table 9.2.5. Known natural communities of Wrentham State Forest.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Acidic Rock Cliff Community	T	S4	1
Acidic Rocky Summit/Rock Outcrop	T	S4	1
Deep Emergent Marsh	P	S4	1
Red Maple Swamp	P	S5	2
Shrub Swamp	P	S3	2

- Classified according to Swain and Kearsley (2011).
- E = Estuarine, P = Palustrine, T = Terrestrial.
- The NHESP ranks communities from most rare (S1) to the most common (S5).
- Information contained in this table was obtained from the following sources:
 - Observed by RMP Planner.
 - DEP Wetlands (1:12,000) data layer.



Example of Acidic Rocky Summit/Rock Outcrop community type atop the Pinnacle. (See Appendix K for photo information.)

Forests

Most of the forest (870.57 acres, 89.97%) is covered in upland forest. There are five CFI plots; four are located in Oak-Mixed stands. All have black and white oaks in the canopy; some also have scarlet and northern red oaks. Other canopy species include white pine, red maple, black birch, aspen, and sugar maple (one plot only). Understory species typically include regenerating canopy species, American hazelnut, black huckleberry, bristly sarsaparilla, low-bush blueberry, maple-leaved viburnum, red maple, sassafras, and witch hazel. Less common understory species include black cherry, false Solomon's seal, hop hornbeam, sweet pepperbush, Virginia creeper, and white pine. The age of Oak-Mixed stands ranged from 65 to 75 years and site index values ranged from 38 to 54. Gypsy moth damage is common in this forest.

The forest's other CFI plot is located in an Oak-Hardwood stand. Its canopy is a mixture of red maple and black oak, northern red oak, swamp white oak, and black gum. The understory includes regenerating oaks, highbush blueberry, ferns, sweet pepperbush, black gum, and witch hazel. This stand was 72 years old in 2010, and had a site index of 55.

In June 2016, MassWildlife assessed the extent of deer browse on portions of the forest. They described the vegetation as "Moderately Impacted" by deer browse, with preferred species (i.e., oaks and maples) only lightly browsed and less preferred species not browsed (Stainbrook 2016a).

Wildlife

The wildlife of Wrentham State Forest is undocumented.

9.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Wrentham State Forest is presented in Table 9.3.1. Cultural Resources are identified in Table 9.3.2. There are no archaeological resources listed by the MHC for this forest.

Table 9.3.1. Significant events in the history of Wrentham State Forest.

Year(s)	Events
1934	Commissioner of Conservation issues an order of taking for approximately 327.26 acres in Wrentham. (Book 2039, Page 543) All parcels are west of Taunton Street and north of Berry Street.
1935	A 38.6 acre parcel is acquired south of Wampum Street in Plainville.
ca. 1935	The CCC based at Foxboro State Forest partly constructs “about six” water holes; by 1950 they have fallen into disrepair (Hills 1955b).
1936	Commissioner of Conservation issues an order of taking for approximately 543 acres in Wrentham and Plainville. (Book 2115, Page 92) All parcels are east of Taunton Street.
1934–1937	The Department of Conservation acquires parcels identified in takings, and establishes Wrentham State Forest.
1950	Recreational day use areas and overnight camp sites are considered for the forest; they are not constructed.
1965	The Department of Public Works takes 86.47 acres of the forest (Parcels 1-1, 1-2, 1-3-T, 2-2-T, and 34) for the construction of Route 495, which opens in 1969.

Table 9.3.2. Cultural resources of Wrentham State Forest.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Cow Commons Landscape	LA	1668	-	M	-	-	-	1
Stone walls	ST	1668	-	M	-	-	-	1
Additional Resourcesⁱ								
<i>Colonial Roads (7)</i>	ST	-	-	-	-	-	-	1
<i>Early Industry Road</i>	ST	-	-	-	-	-	-	1
<i>Blake House Site</i>	AR	-	-	-	-	-	-	2
<i>Possible Former Mill Site</i>	AR	-	-	-	-	-	-	2
<i>Rock Outcrop/Quarry</i>	AR	-	-	-	-	-	-	2
Rock carving “1801”^j	AR	-	-	-	-	-	-	2

a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.

b. Date of construction provided, when known.

c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

d. Integrity is a relative assessment of the condition of a resource’s retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.

e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

f. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

g. Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.

h. The following guidance is offered for the ongoing maintenance of these cultural resources:

1. Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).
2. Refer to Archaeological Features BMP (DCR n.d.g).

i. Documented through the 1984/1985 Cultural Resources Evaluation Project but not yet field verified.

j. Only known from photos on www.geocaching.com; not field verified.

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

As part of a MHC survey and planning project completed in 1984, prehistoric land-use zones along the Taunton River Basin were studied and published; Wrentham State Forest was included in this survey. No archaeological testing was conducted during this study, and to date, no pre-Contact sites have been recorded. Nearby pre-Contact sites date from the Middle Archaic period (8,000–6,000 years B. P.) to the Late Woodland period (1,000–450 years B.P.). The forest has a high archaeological potential for pre-Contact sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

There are no recorded post-Contact archaeological resources within Wrentham State Forest. A 1984/1985 Cultural Resources Evaluation Project identified several potential post-Contact resources; these have not been confirmed. (Table 9.3.2) Background research will determine if the forest is sensitive for locating historic period archaeological sites.

HISTORIC RESOURCES

Wrentham State Forest is a thickly wooded area that has historically been heavily traveled, but sporadically developed. It has over a half dozen forest roads and pathways that date back to at least early colonial times, but retains very little infrastructure. This includes; a quarried area, public livestock corral, mill site, and a separate house site.

Historic Landscapes

Cow Commons. Located in the Wampum Street parcel is an elaborate set of stone walls that create various corrals and pathways for the penning of livestock. This communal compound was one of the first resources created when Wrentham was settled in 1668 (Warner 1890). The stone walls in this historic landscape are remarkably intact, and one can see how they functioned to facilitate the organization and movement of livestock. Much of this resource's defining features are retained.



These stone walls were part of the cow commons, a municipal cattle holding area for use by Wrentham residents. (See Appendix K for photo information.)

Buildings

There are no historic buildings.

Structures

There are no historic structures.

Objects

There are no known historic objects.

9.4. RECREATION RESOURCES

Recreation is primarily trails based. There are few recreation resources that are not associated with the forest's trails. The following recreation activities take place:

- Bicycling, mountain
- Dog walking, on leash
- Geocaching (9 caches as of December 2016)
- Hiking
- Hunting
- Nature study/Photography
- OHV use, dirt bikes only
- Orienteering
- Running/Jogging
- Skiing, cross-country

Wrentham State Forest is one of eight DCR parks where OHVs use is authorized; it is one of only four in eastern Massachusetts. The King Philip Trail Riders, a club that promotes off-road trail riding, conducts group motorcycle events under a one-year special permit. Unauthorized OHV use also takes place in the forest, including on the parcel south of Wampum Street. Illegal OHV use has been a problem for other conservation lands in this area (Town of Plainville 2007).



Motorcycle riders hit the trails on the first day of OHV season, May 1, 2016. (See Appendix K for photo information.)

9.5. INFRASTRUCTURE

Property Boundary

The main section of the forest straddles Route 495, between Routes 1 and 1A. Taunton Street, a municipal road in Wrentham, divides the forest into east and west sections. The eastern side is largely bounded by Route 495, Taunton Street, and Madison Street. Adjacent land use is primarily residential, with existing and planned commercial and industrial development near the intersection of Routes 1 and 495. The western side is bounded by Taunton Street, Beach Street, Route 1A, Berry Street, and Wampum Street. Adjacent land use is primarily residential, with mixed use municipal land to the north and conservation land to the southeast. Minor

encroachment has been identified along Madison Street.

Although 86.47 acres of land was taken from the forest in 1965 to construct Route I-495, park maps did not reflect this change in ownership until this RMP. The DCR does not own, nor does it hold an easement on, land within the Route I-495 right of way.

During the preparation of this RMP it was observed that Town of Wrentham parcel data indicate that DCR owns land between 62 and 70 Madison Street. A review of deeds for those parcels indicated that the Commonwealth has owned, and may still own, the road bed (i.e., Chapin Road) between these properties. This issue could not be resolved during the preparation of this RMP.

The Wampum Street section of the forest is located along the south side of that road. Adjacent land uses include residential development to the north and west, and protected and unprotected open space to the south and east.

When the Wampum Street parcel was acquired by the Commonwealth in 1935, the sellers (i.e., Harold C. and Florence M. Sargent) reserved “the privilege of access at all times over land hereby conveyed for the purpose of watering cattle at the water hole situated at the southwest corner of the premises” (Book 2070, Page 373). Only the sellers are identified as having this privilege. No additional easements or reserved rights were identified during the preparation of this RMP; however, not all deeds were reviewed. Other reserved rights may exist.

Buildings and Structures

There are no non-historic buildings. The only structures are associated with the trails system; all are located east of Taunton Street. (Table 9.5.1) Bridges range from 3–28 feet in length and boardwalks range from 10–60 feet. All are constructed of wood.

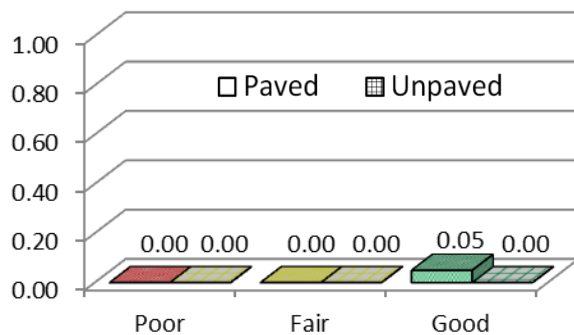
Table 9.5.1. Non-historic buildings and structures of Wrentham State Forest.

Location and Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
Trails System				
Boardwalks (5)	-	3	-	-
Bridges (4)	-	3–4	-	-

- a. Date of construction provided, when known.
- b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

Roads

An 1893 topographic map (<http://docs.unh.edu/MA/frkl93se.jpg>) does not indicate any roads within what is now Wrentham State Forest. By 1940, unpaved roads traversed much of the forest (<http://docs.unh.edu/MA/wren46sw.jpg>). Some of these roads predate the creation of the forest, but others were created specifically for forest purposes. Over time these roads have been converted to use as trails and are no longer in use as roads. There are few public or administrative roads left. The length and condition of these roads are identified in Figure 9.5.1.

Figure 9.5.1. Condition and length (in miles) of roads at Wrentham State Forest.

Parking

There is one formal parking lot and one informal lot. (Table 9.5.2) The formal lot is located on Taunton Street, just north of Route 495. The informal parking area is a pull off on the west side of Madison Street, opposite the residence at 251 Madison Street. The former has informational and regulatory signs, the

latter does not. Roadside parking occurs along the shoulders of George Street.

Table 9.5.2. Number of public parking spaces, by location and type, at Wrentham State Forest.^a

Location	HP	Restricted	Other	Total
Taunton Street	0	0	20	20
Madison Street	0	0	3	3
Total	0	0	23	23

- a. Based on the number of potential 9-foot-wide spaces.



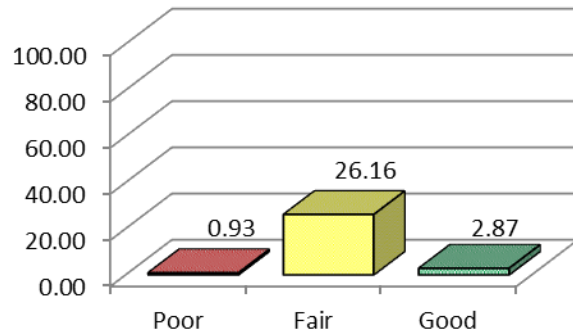
Main parking lot; only the southern half of the lot is visible in this photo. This lot serves cars and vehicles with motorcycle trailers. The forest's kiosk, benches, and iron ranger are visible on the left side of the photo. (See Appendix K for photo information.)

A three car parking lot for the Town of Plainville's George Street conservation property is located just southeast of the intersection of Wampum Street and Everett Skinner Road (Town of Plainville 2007). This lot also provides parking for the Wampum Street parcel of the state forest.

Trails

There are nearly 30 miles of official trails in the forest, all are multi-use (Figure 9.5.2). Approximately 11.2 miles of these trails are open to motorized use (i.e., motorcycles). An additional 0.25 miles of unauthorized user-created trails were also present at the time of the survey.

Figure 9.5.2. Condition and length (in miles) of official trails at Wrentham State Forest.^a



Old forest roads, now trails, are intended to provide vehicle access for fighting fires. However, most are no longer accessible to emergency vehicles. Erosion and vegetative growth have made many of them impassable.

An initial assessment of the forest's trails (DCR 2015; see Appendix J) identified the following eight management issues:

- Poor separation and distinction between trails open to motorized use and those closed to motorized use
- Nearly 50 intersections of motorized and non-motorized trails
- The Warner Trail is routed over several sections of the OHV trail
- Lack of clear signage and markings to distinguish trails open to motorized use from those closed to motorized use
- A confusing and inaccurate trails map
- Numerous access points from adjacent properties
- Most trails are classified as being in "Fair" condition
- Trail density is greater than recommended for an area designated as Parkland (i.e., 6–9 km/km²)

In addition, there are several locations where official trails exit the forest, pass over adjacent private lands, and then re-enter the forest. This includes trail segments open to motorized use as well as segments closed to motorized use. At one location, some motorcyclists are entering the Route 495 corridor and travelling through a storm drain under the highway to cross between sections of the forest. This use is dangerous and is not permitted by Mass DOT.



Example of the multi-use trail that is open to OHVs; note the rocky soils and steep hills that characterize the forest. (See Appendix K for photo information.)

The Warner Trail passes through the forest. Due to its circuitous layout the trail enters and exits the forest twice, travelling through a variety of private and municipal properties. It is unclear if legal agreements exist for the Warner Trail to pass through private properties that abut the forest.

Kiosks and Signs

The forest's Main Identification Sign is located on the east side of Taunton Street, opposite the entrance to the main parking lot. A kiosk is located adjacent to that parking lot.



Kiosk, benches, and iron ranger located at entrance to Taunton Street parking lot. (See Appendix K for photo information.)

Iron Ranger

An iron ranger is located next to the kiosk in the main (i.e., Taunton Street) parking lot.

Memorials and Markers

There are no known memorials and markers. However, the forest has not been inventoried for these markers, so some may be present. Two wooden benches adjacent to the kiosk have inscriptions. The first bench bears the names of three hardware or building supply companies and the second bench bears the name of the person that designed and constructed the benches. Only a portion of these carvings remain legible.

9.6. INTERPRETATION

There is no regular interpretive programming, and there are no interpretive panels.

9.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

This property is unstaffed. The Forest and Park Supervisor from F. Gilbert Hills is responsible for the operation and maintenance of this forest.

Partnerships and Volunteers

The Foxborough-Wrentham-Franklin State Forests Advisory Council was formed during the preparation of the GOALS Plan (DEM 1989). It remains active, and provides advice and assistance on a variety of topics and projects. The King Philip Trail Riders is a

motorcycle club that promotes off-road riding and works to ensure the continued availability of off-road recreational opportunities. Club members individually and collectively ride at Wrentham State Forest and help maintain its trails.

Safety

The Wrentham and Plainville fire departments provide fire response and emergency services. Additional support is provided by DCR Fire District 4 personnel, based at F. Gilbert Hills. Municipal police departments, the Massachusetts State Police (Station H-3, Foxborough), and the Massachusetts Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

Financial contributions placed into the forest's iron ranger are added to the Conservation Trust Fund and used at Wrentham State Forest. As of spring, 2016, there was approximately \$1,530 in the fund.

Retained Revenue

The park does not generate or retain revenue. There are no entrance or parking fees.

Other Revenues

There are no other revenues.

9.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 9.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of Wrentham State Forest. Legal agreements specific to the forest are listed in Table 9.8.1.

Table 9.8.1. Key legal agreements for Wrentham State Forest.

Party and Subject of Agreement	Type^a	Expiration Date^b
King Philip Trail Riders Use of off-road vehicles in F. Gilbert Hills, Franklin, and Wrentham State Forests.	A	2003

a. Agreement types include: A = Memorandum of Agreement; C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

b. Year that agreement expires.

In 1991, the DEM attempted to establish a legal agreement for maintenance and public use of a 550-foot-long section of the Warner Trail that passes along Bear Swamp Road, through 200 Beach Street. The landowner chose to enter into a verbal agreement. The property was sold in 1997 and again in 2011. It is unknown if the new owner supports continued trail access.

Key planning documents are identified in Table 9.8.2.

Table 9.8.2. Key management and guidance documents for Wrentham State Forest.

Author and Document	Year
Department of Environmental Management F. Gilbert Hills State Forest: Guidelines for Operations and Land Stewardship.	1989
Gannett Fleming, Inc. Environmental Audit Report: Wrentham State Forest, Wrentham, Massachusetts.	1998 ^c

Annual Maintenance

There are no regular activities; all maintenance is performed on an as needed basis.

Natural Resources

Water Resources

There are no water management activities unique to this property.

Rare Species

There are no rare species monitoring or management activities.

Invasive Species

There is no monitoring or management of invasive plants.

Vegetation

There are five CFI plots; they were last monitored in 2010.

Timber harvesting has historically been used for forest management. In 1985 two harvests conducted on a total of 23 acres produced 97 cords of wood. A 1995 home fuelwood sale produced 72 cords from 9.3 acres. The following year, a home fuelwood sale produced 90 cords from 12 acres. The Forest's designation as Parkland prohibits the continued use of commercial timber harvests as a management tool.

In 2016, MassWildlife personnel surveyed deer browse in the area between the main parking lot and Bear Swamp Road (Stainbrook 2016a). It is unknown if and when this survey will be repeated.

Wildlife

Under DCR's Forest and Park Regulations (302 CMR 12.11), fishing and hunting are allowed in the forest.

Cultural Resources

There are no management practices unique to this forest.

Recreation Resources

The F. Gilbert Hills Forest and Park Supervisor, with the assistance of volunteers, maintains trails and trail markings on an as needed basis.

Infrastructure

Boundary

The Regional Forester and Forest and Park Supervisor from F. Gilbert Hills maintain the boundaries.

Buildings and Structures

There are no buildings to repair or maintain.

Roads

There are no ongoing road maintenance activities.

Parking Areas

The Forest and Park Supervisor from F. Gilbert Hills State Forest maintains the parking lot on Taunton Street.

Trails

The forest's motorcycle trails are maintained by volunteers from the King Philip Trail Riders. Motorcyclists are restricted to an approximately eight-mile-long designated OHV trail. Their riding season extends from May 1 through the last Sunday in November. Mountain bikes are allowed on trails designated for their use, as well as OHV trails, on a year-round basis. Pedestrians are allowed on all trails year-round. Use of OHV trails is unidirectional for all user groups; trail markings indicate the direction of travel.

Kiosks and Signs

The Forest and Park Supervisor from F. Gilbert Hills maintains the kiosk and signs. Markings along the Warner Trail are usually maintained by the Friends of the Warner Trail; in recent years, DCR field personnel have remarked the trail.

9.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Wrentham State Forest. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 9.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning

(Figure 9.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

- No sections of Wrentham State Forest have been designated Zone 1.

Zone 2

- All areas not specifically designated as Zone 3.

Zone 3

The following portions of Wrentham State Forest have been designated Zone 3.

- Existing parking lot on Taunton Street.
- A 30 by 75 foot section along the western shoulder of Madison Street, near an existing forest road and gate; for the potential creation of small parking area for non-motorized trail users.

Significant Feature Overlay

An OHV trail management significant feature overlay was developed for the forest. This overlay follows the centerline of trails currently open to OHVs, and extends outward to the limits of the pre-existing road bed or trail (i.e., it does not include areas expanded by OHV use.) Special trail management activities are associated with the trails in this overlay.

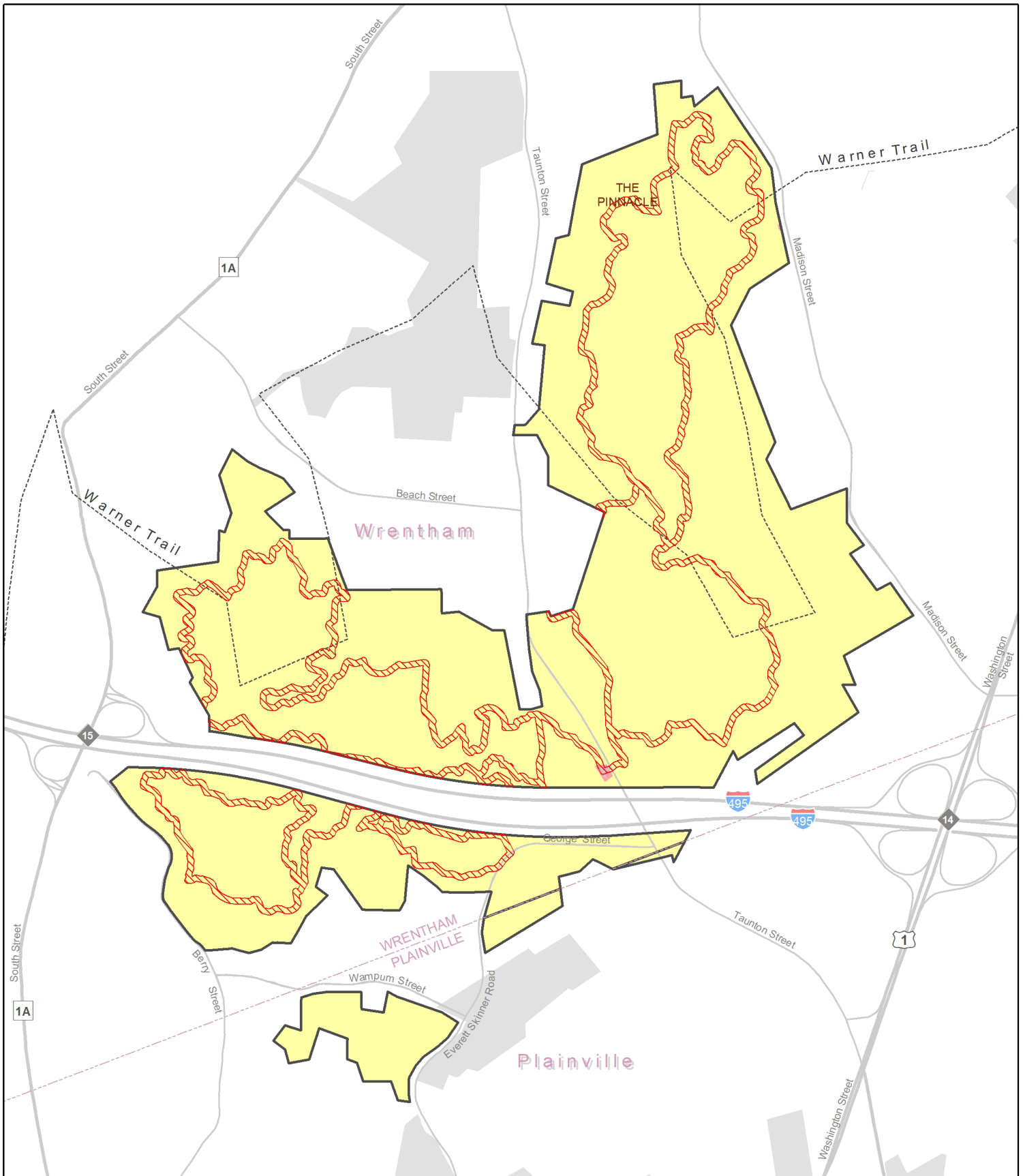
Management Recommendations

Five priority management recommendations were developed for Wrentham State Forest. (Table 9.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.



Legend

- Wrentham State Forest
- Other Legal Interest - DCR
- Other Protected Open Space

Land Stewardship Zoning

- Zone 1
- Zone 2
- Zone 3
- OHV Significance Overlay

Wrentham State Forest

Figure 9.9.1

Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS, 2016

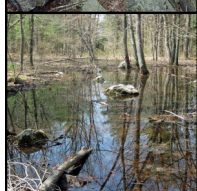
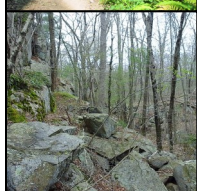
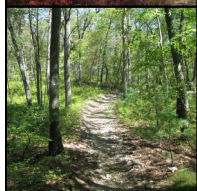
1,000 Feet

Table 9.9.1. Priority recommendations for Wrentham State Forest.

Recommendation	Implementation ^a
Implement recommendations identified in <i>Rapid Assessment and Trail System Recommendations</i> (DCR 20015).	P, R, V
Reopen main forest roads/trails to emergency vehicles by clearing brush and repairing heavily eroded areas.	F, R
Request that MassDOT replace fencing along I-495 to prevent recreationists from passing from the forest into the highway.	R
Establish an updated agreement with the King Philip Trail Riders for the use of off-road vehicles in F. Gilbert Hills, Franklin, and Wrentham State Forests.	L, R, V
Contact abutter along Beach Street, Wrentham regarding establishing an agreement to ensure continued hiker access along the 550-foot-long segment of the Warner Trail that passes through their property.	P, R

- a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.

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Wrentham State Forest

Wrentham State Forest is best known for its trail-based recreation. It is one of four DCR parks in eastern Massachusetts where off-highway vehicles (OHVs), trail bikes only, are allowed. Hikers, mountain bikers, and equestrians share these trails with OHVs, and also use a network of OHV-free trails. The forest is open for hunting.

Top Attractions

- OHV trails
- Hunting
- Hiking/Biking trails

Friends Group

- None

Partners & Permittees

- Foxborough-Wrentham-Franklin State Forests Advisory Council
- King Philip Trail Riders

Conservation Opportunities

- Establish an agreement to ensure continued hiker access along the Warner Trail over private lands adjacent to the forest.
- Reopen main trails/fire roads to emergency vehicles by clearing brush and repairing heavily eroded areas.
- Implement recently identified trail system recommendations to improve signs, markings, and maps; increase separation of motorized and non-motorized trails; reroute Warner Trail off OHV trails; and close access points from adjacent properties.

Park Inventory

Date Established: 1934

Landscape Designation
Parkland

Current Staffing

This park is managed by staff from F. Gilbert Hills State Forest.

Park Size (acres)

Total Area:	967.7
Wetlands:	91.7
Lakes and Ponds:	0.5

Rare Species

State-listed:	2
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Cultural Resources

Documented:	2
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Miles of Roads

Paved:	0.0
Unpaved:	0.0

Miles of Trails

Official:	30.0
OHV:	11.2

DCR Recreation Facilities

This is a natural area, DCR does not maintain any constructed recreation facilities at this park.



Stone walls, some over four feet high, are a common feature of Rehoboth State Forest. (See Appendix K for photo information.)

SECTION 10. REHOBOTH STATE FOREST

10.1. INTRODUCTION

Rehoboth State Forest is located in the town of Rehoboth; north of Route 44 and east of Route 118. (Figure 10.1.1) It is located approximately 11.5 miles south of F. Gilbert Hills State Forest.

In 1934 the Department of Conservation acquired six parcels of land along the East Branch of the Palmer River in Rehoboth, thus establishing Rehoboth State Forest. The “original idea was to purchase a much larger area but interest and money ran out” (Cook ca. 1954). Forestry data indicate that at the time of acquisition at least one of these parcels was agricultural land that had been abandoned for approximately a decade. The size of the forest has remained unchanged since its establishment.

The forest’s southernmost portion is located on the slopes of Great Meadow Hill. From 1916 through 1955 a state-owned fire tower stood at the summit of this hill. The presence of this tower may have influenced the decision to acquire nearby land. However, the reason(s) that specific parcels were selected remains unknown.

Rehoboth State Forest is a small, little known property with limited recreation infrastructure. It is used for passive recreation including hiking,

geocaching, and hunting. However, its greatest use is likely associated with a 5k adventure race that traverses the forest and adjacent private land. Two days per year this race brings hundreds of runners into the forest.

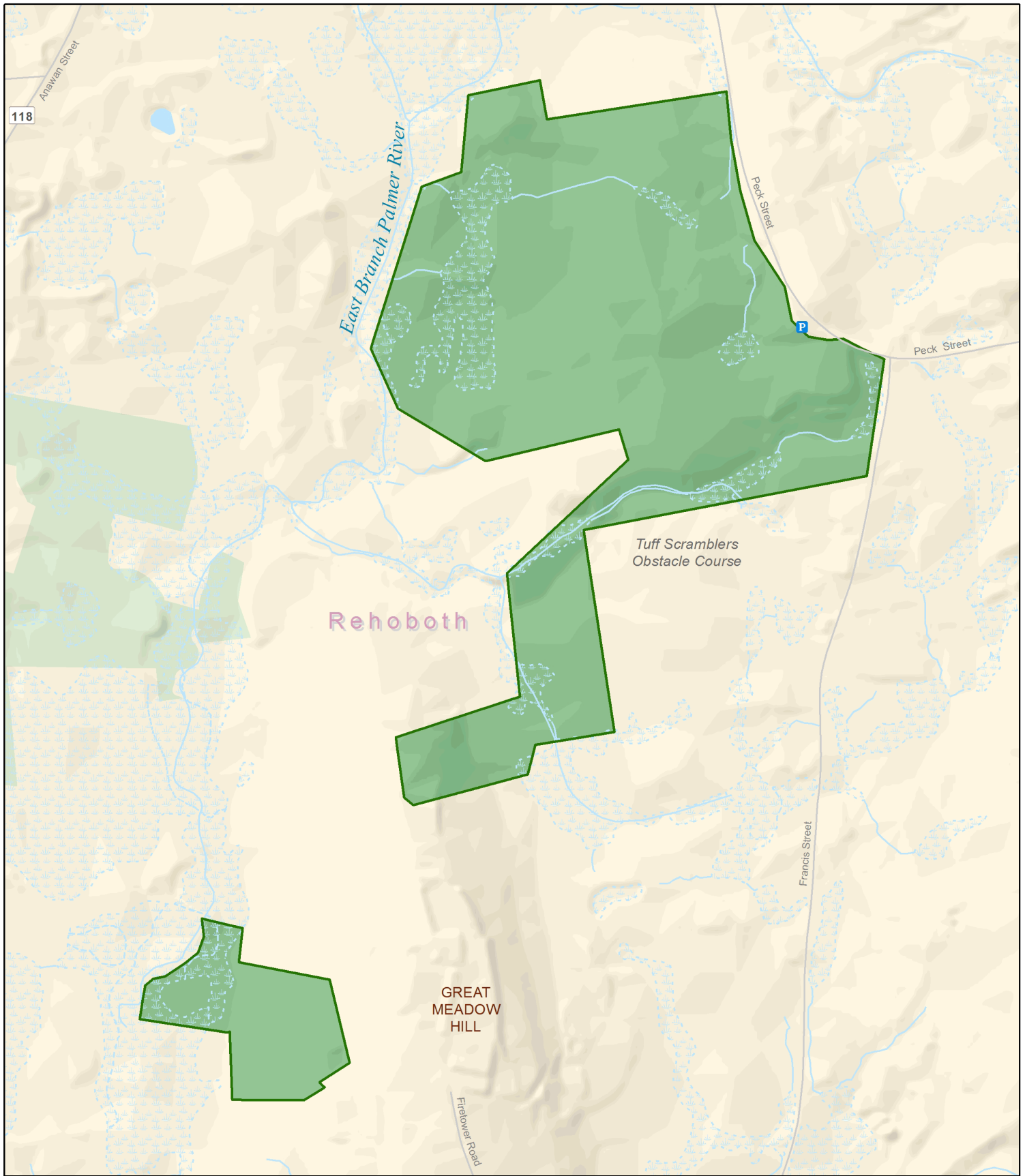
The forest’s physical, political, and regulatory attributes are summarized in Table 10.1.1.

Table 10.1.1. Physical, political, and regulatory settings of Rehoboth State Forest.

Setting	Name or Metric
Location:	Rehoboth
Area (acres)^a:	139.96
Perimeter (miles)^a:	3.50
Landscape Designation^b:	Woodland
Legislative Districts:	
House	4 th Bristol
Senate	Bristol and Norfolk
Regulatory Designation:	None identified

- a. Calculated using a Geographic Information System (GIS).
- b. For a summary of DCR’s landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

Associated Properties. There are no associated properties. The Rehoboth Fire Tower is located within the Fall River Heritage Complex.



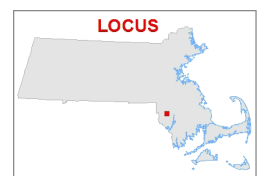
- Rehoboth State Forest
- Blue Hills Complex Land
- Other DCR Land
- Other Open Space
- DCR Legal Interest
- P Public Parking

Rehoboth State Forest

Figure 10.1.1

1,000

Feet



Geographic information provided by MassGIS and DCR GIS, 2016

The Forest and Park Supervisor from F. Gilbert Hills State Forest manages, as time and resources permit, several DCR properties, including F. Gilbert Hills State Forest (Section 6), Bristol Blake State Reservation (Section 7), Franklin State Forest (Section 8), Wrentham State Forest (Section 9), Rehoboth State Forest, West Bridgewater State Forest (Section 11), and Bridgewater State Forest (Section 12). They also oversee DCR's interests in Angle Tree Monument Reservation (Section 1).

10.2. NATURAL RESOURCES

Physical Features

The forest consists of two separate parcels; the larger Peck Street parcel (approximately 125 assessed acres) and the smaller Great Meadow Hill parcel (13 assessed acres). The former is located north of Great Meadow Hill, and the latter is located west of Great Meadow Hill. Both parcels slope westward toward the East Branch of the Palmer River. Elevations in the Peck Street parcel range from approximately 118 feet along the river to approximately 226 feet on the northern slope of Great Meadow Hill. Elevations in the Great Meadow Hill parcel range from approximately 108 feet along the river to 167 feet on the west slope of Great Meadow Hill.

Water Resources

Most of the forest's wetlands are associated with the East Branch of the Palmer River. Both parcels border forested wetlands along the river's edge. The Peck Street parcel also has several isolated wetlands and wetlands associated with streams; all are forested. These and other water resources are summarized in Table 10.2.1.

Table 10.2.1. Water resources of Rehoboth State Forest.

Water Resource	Name or Metric
Watershed:	Narragansett Bay
Aquifer:	
Medium Yield (acres)	0.00
High Yield (acres)	0.00
Rivers and Streams (miles)	0.63
Vernal Pools	
Certified (#)	0
Potential (#)	1
Wetlands (acres)	16.19
Lakes and Ponds (acres)	0.00

No portion of the forest is susceptible to floods. (Table 10.2.2)

Table 10.2.2. Potential impacts of flooding to Rehoboth State Forest.

Type of Impact	Acres	%
Flooding:		
100-year Storm	0.00	0.00
500-year Storm ^a	0.00	0.00

a. Cumulative value; includes 100-year storm impacts.

Rare Species

State-listed Species

There are no state-listed species.

Priority Habitat

There is no Priority Habitat.

Vegetation

There has been no floristic inventory. Information on plants comes from ongoing forest monitoring efforts. (See Forests, below.)

Invasive Species

Invasive species have not been surveyed. Three species were incidentally observed during the preparation of this plan. (Table 10.2.3) All are associated with a former homestead.

Table 10.2.3. Known invasive plants of Rehoboth State Forest.

Species ^a	Status ^b	Source ^c
Garlic mustard	I	1
Japanese barberry	I	1
Winged euonymus	I	1

- a. Presented alphabetically, by common name.
- b. Plants are classified as being Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
- c. Information contained in this table was obtained from the following sources:
1. Incidentally observed by RMP Planner, November 2015.

Natural Communities

Information on the forest's natural communities is incomplete; only three community types have been confirmed. (Table 10.2.4) CFI data and forest cover type maps suggest that Mixed Oak Forest and Oak-Hickory Forest community types may also be present.

Table 10.2.4. Known natural communities of Rehoboth State Forest.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Inland Atlantic White Cedar Swamp	T	S2	1,2
Red Maple Swamp	P	S5	1
Shrub Swamp	P	S3	1

- a. Classified according to Swain and Kearsley (2011).
- b. E = Estuarine, P = Palustrine, T = Terrestrial.
- c. The NHESP ranks communities from most rare (S1) to the most common (S5).
- d. Information contained in this table was obtained from the following sources:
1. DEP Wetlands (1:12,000) data layer.
 2. DCR trails assessment data.



This Inland Atlantic White Cedar Swamp is the rarest of the forest's known natural communities. (See Appendix K for photo information.)

Forests

Most of the property (122.76 acres, 87.71%) is covered in upland forest. Stand types include oaks, oaks and other hardwoods, and oaks and white pine. There is one CFI plot; it is located in an Oak-Hardwood stand. Canopy species include black, northern red, and white oaks; black and yellow birch; red maple, American beech, white ash, and hickories.

Understory species typically include regenerating canopy species, American hazelnut, black huckleberry, bristly sarsaparilla, hop hornbeam, sweet pepperbush, Virginia creeper, and white pine. The stand's age was estimated at 83 years in 2010; it had a site index value of 62.

Wildlife

The wildlife of Rehoboth State Forest is undocumented.

10.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Rehoboth State Forest is presented in Table 10.3.1. Cultural Resources are identified in Table 10.3.2. There are no archaeological resources listed by the MHC for the forest.

Table 10.3.1. Significant events in the history of Rehoboth State Forest.

Year(s)	Events
1934	Commonwealth acquires approximately 140 acres of land and establishes Rehoboth State Forest. An existing fire tower is located nearby, on the summit of Great Meadow Hill.
1955	U.S. Government constructs Nike Battery PR-19 Integrated Fire Control area at the top of Great Meadow Hill. This has no direct impact on the forest, but forces the relocation of the fire tower to Reservoir Avenue, Rehoboth. (See Section 1.3 for information on other fire towers in the complex.)
1978	A “release” cut takes place in the Peck Street parcel.
1983	A commercial fuel wood thinning takes place in the Peck Street parcel (Mason 1983).

Table 10.3.2. Cultural resources of Rehoboth State Forest.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Jones House Site	LA	-	-	-	-	-	-	1, 2
Cellar Hole	AR	-	4	M	-	-	-	1, 3
Well	AR	-	3	H	-	-	-	3, 4
Retaining wall	ST	-	3	M	-	-	-	1, 2
Forest road	ST	-	3	M	-	-	-	1, 2
Stone walls	ST	-	3	H	-	-	-	2

- Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- Date of construction provided, when known.
- Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- Integrity is a relative assessment of the condition of a resource’s retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.
- The following guidance is offered for the ongoing maintenance of these cultural resources:
 - Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).
 - Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).
 - Refer to Archaeological Features BMP (DCR n.d.g).
 - Refer to Water Holes BMP (DCR n.d.j).

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

Rehoboth State Forest has not been archaeologically surveyed and no pre-Contact sites are documented within the forest. Less than a mile to the north an Indigenous American Village Site dating to the Middle Archaic Period (8,000–6,000 years B.P.) is recorded along the Palmer River. Less than a mile to the south is a rock outcrop known as Anawan’s Rock (Wampanoag) and recorded as MHC# REH.2.

Because of these nearby resources, this forest has a high archaeological potential for pre-Contact sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

The only known post-Contact resources are associated with the Jones Home Site. (See Historic Landscapes, below.) Background research will determine if the forest is sensitive for locating historic period archaeological sites.

HISTORIC RESOURCES

The forest borders the Palmer River and Great Meadow Hill. Although there are few historic resources within the forest, its proximity to the river and hill are of note. This stretch of the Palmer River was used in the early 18th century for multiple early industrial ventures, with the most significant being the Peck Family Iron Forging Privilege. Along with the Pecks, other families used this area for early industrial and agrarian purposes. These activities were likely happening on the land that is now Rehoboth State Forest.

Historic Landscapes

Jones House Site. This landscape is located in the Peck Street parcel, between Peck Street and the Palmer River. It consists of a cellar hole, stone well, and a small retaining wall adjacent to a forest road to the site. The house site is located in a stand of red cedar, indicating its past use as pasture. Several non-native and invasive plants are located around the cellar hole; remnants of former ornamental plantings. This collection of resources, located so closely together, provides a good sense of what this landscape was like when active. It retains much of its integrity.



Stone well at the Jones House Site. Park visitors capped the well using a large stone from the nearby cellar hole. (See Appendix K for photo information.)



Cellar hole at the Jones House Site. One wall is partially collapsed, but the remainder of the foundation is in generally good condition. (See Appendix K for photo information.)

Buildings

There are no historic buildings

Structures

Stone walls are common throughout the forest, generally along former parcel boundaries. They are unusual in that they are high, many segments are over four feet tall, and that they incorporate large boulders.

10.4. RECREATION RESOURCES

Recreation is trails based. The following recreation activities take place:

- Bicycling, mountain
- Dog walking, on leash
- Geocaching (5 caches as of December 2016)
- Hiking
- Horseback riding
- Hunting
- Nature study/Photography
- Running/Jogging
- Skiing, cross-country

A commercial 5K adventure run (i.e., Tuff Scramblers) partially takes place in the forest. It is “spread out over 140 acres combining technical single track on DCR’s state forest and off-road terrain” and includes “over 20 natural and unique man made obstacles” and “plenty of mud” (<http://www.tuffscramblers.com>). All obstacles are located outside the forest. Races are held in May and

October, and have 700 to 1,000 participants and 100 to 300 spectators per event.

10.5. INFRASTRUCTURE

Property Boundary

Both parcels are located east of the East Branch of the Palmer River. The Peck Street parcel borders Peck Street and Francis Street to the east, and private lands to the south, west, and north. These properties are mostly forested or agricultural. One abutting property, located south of the Peck Street parcel and fronting Francis Street, has been developed for commercial adventure runs. (See Recreation, above, for more information.)

The Great Meadow Hill parcel is bordered on all sides by private land belonging to a single owner. This adjacent land is entirely forested, wetland, or agricultural.

Buildings and Structures

There are no non-historic buildings. The only non-historic structures are boardwalks associated with the trails system. (Table 10.5.1)



Boardwalks, one in foreground and one in background, along the Pine Loop Trail. (See Appendix K for photo information.)

Roads

A 1934 “Map of State owned lands in Rehoboth, Mass.; surveyed by B. R. Evans” indicates a road network through much of the Peck Road parcel and a single road through the Great Meadow Hill parcel. Over time, these roads have closed in and become trails. There are no longer any public or administrative roads in the forest.

Table 10.5.1. Non-historic buildings and structures of Rehoboth State Forest.

Location and Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
Trails System				
Boardwalk (2)	2015	1	-	-

a. Date of construction provided, when known.

b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

Parking

There is one formal parking area; its entrance is located opposite 93 Peck Street. (Table 10.5.2)

Table 10.5.2. Number of public parking spaces, by location and type, at Rehoboth State Forest.^a

Location	HP	Restricted	Other	Total
Peck Street	0	0	4	4
Total	0	0	4	4

a. Based on the number of potential 9-foot-wide spaces.

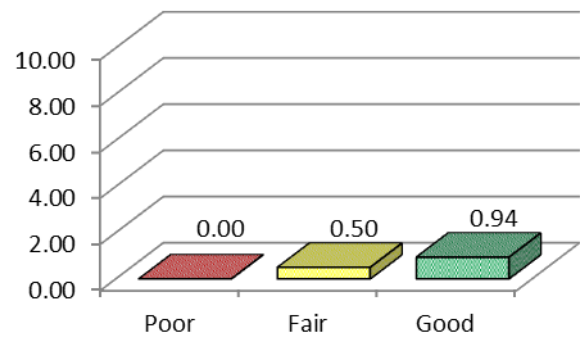


Peck Street parking lot. Trailhead and map board are located just to the left of this image. (See Appendix K for photo information.)

Trails

There are 1.44 miles of official trails in the forest; all are located in the Peck Road parcel (Figure 10.5.1). There are two named trails, Pine Loop Trail and Cedar Swamp Trail. The former is a loop trail that accesses most of the Peck Road parcel, and the latter is a spur off the Pine Loop Trail that leads to the forest's Atlantic white cedar swamp. Both trails are marked with standard DCR painted blazes. The Cedar Swamp Trail leads off the forest onto private property, as do two other unnamed trail segments. There are no known unauthorized user-created trails.

Figure 10.5.1. Condition and length (in miles) of official trails at Rehoboth State Forest.^a



A 1.25 mile long Healthy Heart Trail is based on the Pine Loop Trail; it includes a combination of trails and forest roads. It is not ADA accessible.

Kiosks and Signs

The forest's main identification sign is located opposite 93 Peck Street, adjacent to the parking lot entrance. There is no kiosk. However, a map board, which identifies the Pine Loop and Cedar Swamp trails, is located adjacent to the parking area.



The forest's map board gets a fresh coat of paint. The board and map were constructed as part of a Boy Scout project. (See Appendix K for photo information.)

Iron Ranger

There is no iron ranger.

Memorials and Markers

There are no known memorials and markers. However, the forest has not been inventoried for these markers so some may be present.

10.6. INTERPRETATION

There is no regular interpretive programming, and there are no interpretive panels.

10.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

This property is unstaffed. The Forest and Park Supervisor from F. Gilbert Hills is responsible for the operation and maintenance of this forest.

Partnerships and Volunteers

There are no partnerships or ongoing volunteer efforts. In the past, youth groups (e.g., Boy Scouts) have volunteered at the forest.

Safety

The Rehoboth fire department provides fire response and emergency services. Additional firefighting support is provided by Fire District 3 personnel based at Freetown-Fall River State Forest. The Rehoboth Police Department, Massachusetts State Police (Station D-4, Middleborough), and the Massachusetts Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

There are no Conservation Trust Fund revenues dedicated to Rehoboth State Forest.

Retained Revenue

The park does not generate or retain revenue.

Other Revenues

There are no other revenues.

10.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs, legal agreements, and institutional knowledge. This section describes those practices unique to the management of Rehoboth State Forest. Legal agreements specific to the forest are listed in Table 10.8.1.

Table 10.8.1. Key legal agreements for Rehoboth State Forest.

Party and Subject of Agreement	Type ^a	Expiration Date ^b
Tuff Scramblers, Inc. One day obstacle run for approximately 700 runners; all obstacles located outside of forest.	S	2015

a. Agreement types include: A = Memorandum of Agreement; C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

b. Year that agreement expires.

No key management or guidance documents have been identified for this property.

Annual Maintenance

There are no regular activities; all maintenance is performed on an as needed basis.

Natural Resources

Water Resources

The DCR does not conduct any water management activities at this forest. An abutter has the deeded right to “maintain the old iron works dam” on the East Branch of the Palmer River and to “flow said meadows as originally reserved by Colonel Philip Wheeler in his deed to Valentine Wheeler in 1746” (Book 38, Page 353). This could potentially flood portions of the forest along the river. It is unknown when this right was last exercised or if the old iron works dam retains the capacity to “flow said meadows.”

Rare Species

There are no rare species monitoring or management activities.

Invasive Species

There is no monitoring or management of invasive plants.

Vegetation

There is one CFI plot; it was last monitored in 2010.

Two tree harvests were conducted in the late 1970s and early 1980s. In 1978, 50 cords of black oak, northern red oak, white oak, cottonwood, and red

maple were cut to release white pine. In 1983, 181 cords of “good quality firewood” were cut as part of a fuel wood thinning (Mason 1983). Both harvests took place in the Peck Street parcel. There have been no harvests since.

Wildlife

Under DCR’s Forest and Park Regulations (302 CMR 12.11), fishing and hunting are allowed in the forest.

Cultural Resources

There are no management practices unique to this forest.

Recreation Resources

There are no recreation resources or infrastructure to maintain.

Infrastructure

Boundary

The Regional Forester and the Forest and Park Supervisor from F. Gilbert Hills maintain the boundaries.

Buildings and Structures

There are no buildings to repair or maintain.

Roads

There are no ongoing road maintenance activities.

Parking Areas

There is no ongoing maintenance of the parking area. It is not plowed in the winter.

Trails

The F. Gilbert Hills Forest and Park Supervisor maintains trails and trail markings on an as needed basis, as time and resources permit.

Kiosks and Signs

The Forest and Park Supervisor from F. Gilbert Hills maintains the kiosk and signs.

10.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Rehoboth State

Forest. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 10.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 10.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

No sections of Rehoboth State Forest have been designated Zone 1.

Zone 2

The entire Rehoboth State Forest has been designated Zone 2.

Zone 3

No sections of Rehoboth State Forest have been designated Zone 3.

Significant Feature Overlay

There is no Significant Feature Overlay.

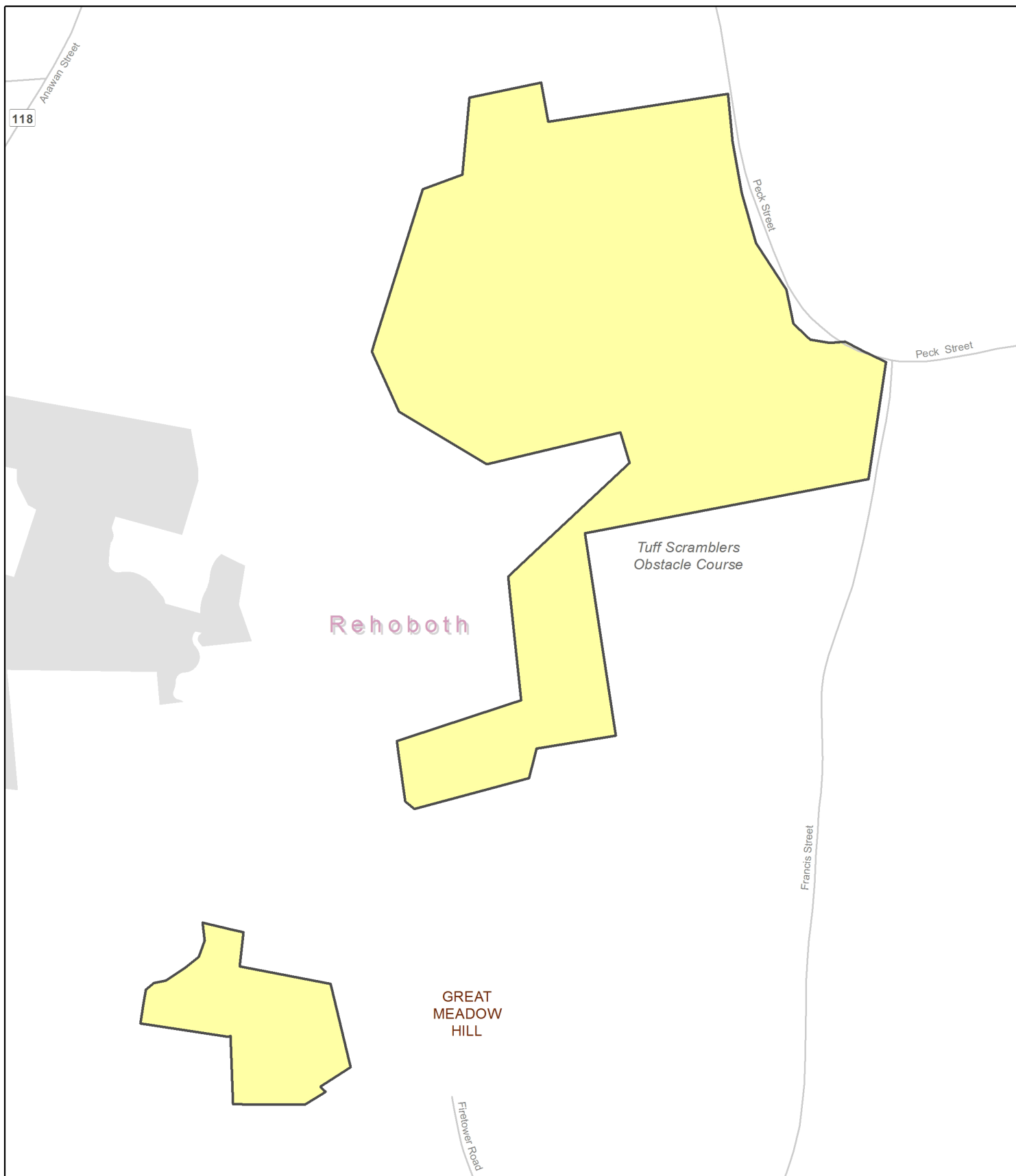
Management Recommendations

Two priority management recommendations were developed for Rehoboth State Forest. (Table 10.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.



Legend

- Rehoboth State Forest
- Other Legal Interest - DCR
- Other Protected Open Space

Land Stewardship Zoning

- Zone 1
- Zone 2
- Zone 3

Rehoboth State Forest

Figure 10.9.1

Recommended Land Stewardship Zoning

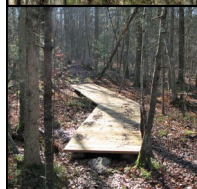
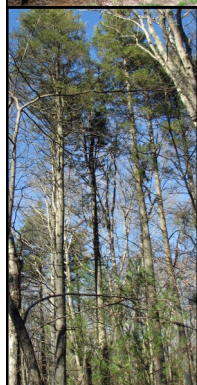
Geographic information provided by MassGIS and DCR GIS. 2016

1,000 Feet

Table 10.9.1. Priority recommendations for Rehoboth State Forest.

Recommendation	Implementation ^a
Cover the Jones House Site's well in accordance with Archaeological Features BMP.	P, R
Stabilize the east wall of the Jones House Site's cellar hole to prevent further collapse.	C, P

- a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.



Rehoboth State Forest

Rehoboth State Forest is a small property located along the East Branch of the Palmer River. It is used for passive recreation including hiking and hunting. Its greatest use is associated with a 5k adventure race that traverses the forest and nearby private lands. Twice each year the Tuff Scramblers race bring hundreds of runners to the forest.

Top Attractions

- Atlantic white cedar swamp
- Hunting
- Hiking/Biking trails

Friends Group

- None

Partners & Permittees

- Tuff Scramblers, Inc.

Conservation Opportunities

- Protect the Jones House Site's significant cultural resources by securing the well and stabilizing the east wall of the cellar hole.

Park Inventory

Date Established: 1934

Landscape Designation
Woodland

Current Staffing

This park is managed by staff from F. Gilbert Hills State Forest.

Park Size (acres)

Total Area:	140.0
Wetlands:	16.2
Lakes and Ponds:	0.0

Rare Species

State-listed:	0
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Cultural Resources

Documented:	6
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Miles of Roads

Paved:	0.0
Unpaved:	0.0

Miles of Trails

Official:	1.4
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DCR Recreation Facilities

This is a natural area, DCR does not maintain any constructed recreation facilities at this park.



A lone kayaker paddles West Meadow Pond at West Bridgewater State Forest. (See Appendix K for photo information.)

SECTION 11. WEST BRIDGEWATER STATE FOREST

11.1. INTRODUCTION

West Bridgewater State Forest is located in the town of West Bridgewater; south of the Brockton town line and east of Route 24. (Figure 11.1.1) It is approximately 11 miles east of F. Gilbert Hills State Forest.

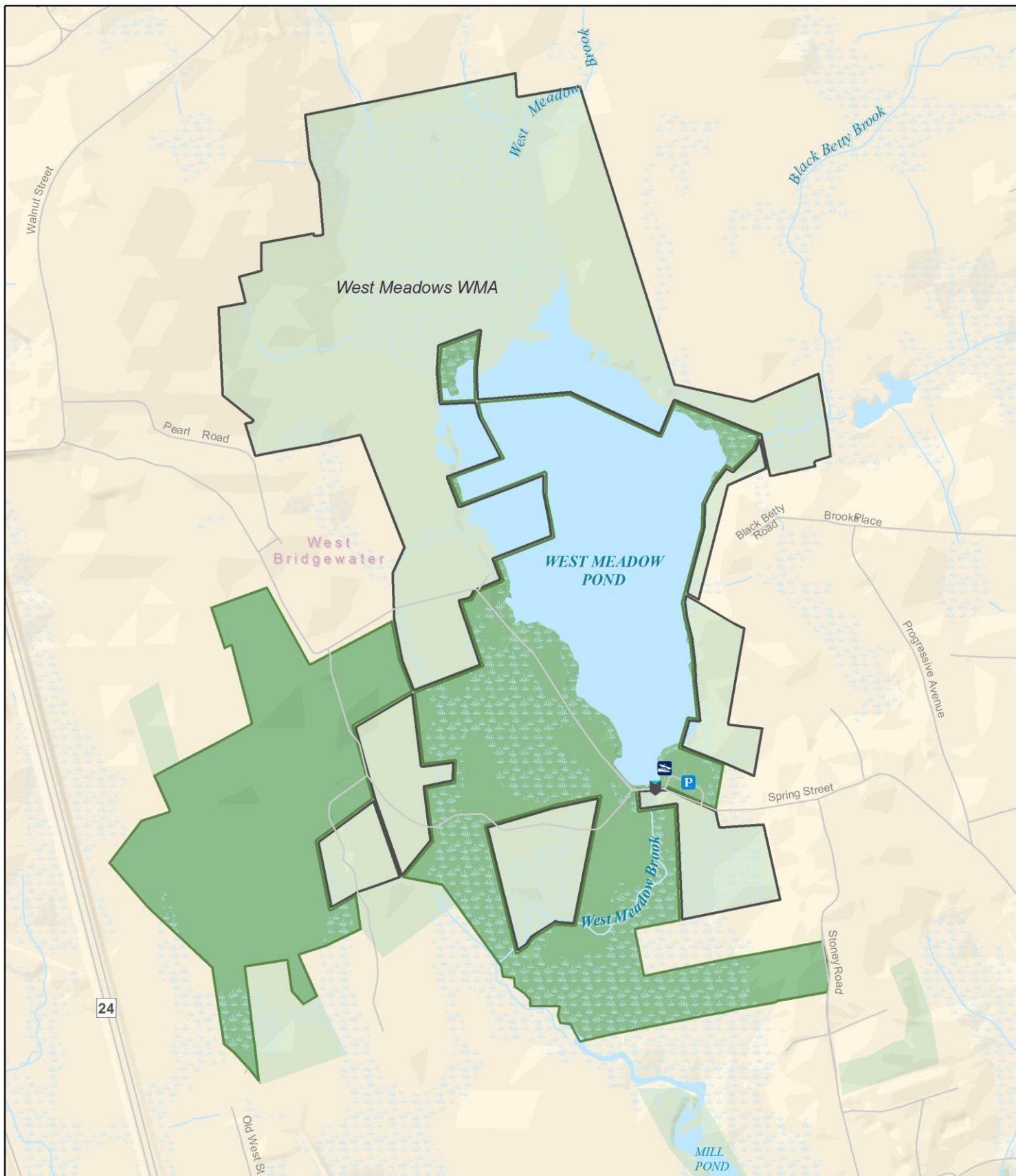
Associated with the forest is West Meadows Wildlife Management Area (WMA). This Massachusetts Division of Fisheries and Wildlife (Mass Wildlife) property surrounds much of the state forest, and portions of the WMA are inholdings within the forest. These two properties are interconnected both physically and from a management perspective.

West Bridgewater State Forest was established by the Massachusetts Department of Conservation in the mid-1930s. At that time, the department was the Commonwealth's forestry, parks, wildlife, and animal industry agency. In the 1950s, lands around the forest were acquired and West Meadows WMA was created; it expanded significantly in the 1960s. During this time the forest and WMA were jointly managed by personnel from different divisions of the same agency.

In 1975, responsibility for the management of state forests and WMAs was placed under two separate agencies (i.e., the Department of Environmental Management and the Department of Fisheries, Wildlife & Recreational Vehicles, respectively). For the first time in their history, West Bridgewater State Forest and West Meadows WMA were administratively distinct. Despite this formal separation, management of these two properties remains informally linked.

West Bridgewater State Forest is not as well-known as West Meadows WMA. This is likely due to two factors. First, the term West Meadow has been used for centuries to refer to this section of West Bridgewater. Second, two of the most popular recreational activities on these properties are hunting and fishing; activities commonly associated with WMAs.

The forest's physical, political, and regulatory attributes are summarized in Table 11.1.1.



- West Bridgewater State Forest
- West Meadows Wildlife Management Area
- Blue Hills Complex Land
- Other Protected Open Space
- DCR Legal Interest
- Boat Ramp
- Dam
- Public Parking

West Bridgewater State Forest

Figure 11.1.1

1,000
Feet



Geographic information provided by MassGIS and DCR GIS, 2016

Table 11.1.1. Physical, political, and regulatory settings of West Bridgewater State Forest.

Setting	Name or Metric
Location:	West Bridgewater
Area (acres)^a:	245.98
Perimeter (miles)^a:	6.95
Landscape Designation^b:	Parkland
Legislative Districts:	
House	10 th Plymouth
Senate	Norfolk, Bristol, and Plymouth
Regulatory Designation:	Priority Habitat

- a. Calculated using a Geographic Information System (GIS).
b. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

Associated Properties. There is one associated property not owned or managed by DCR; it is:

- **West Meadows Wildlife Management Area.** This approximately 244 acre property is contiguous with West Bridgewater State Forest. It is owned and managed by Mass Wildlife. The two properties share resources and infrastructure.

The Forest and Park Supervisor from F. Gilbert Hills State Forest manages, as time and resources permit, several DCR properties, including F. Gilbert Hills State Forest (Section 6), Bristol Blake State Reservation (Section 7), Franklin State Forest (Section 8), Wrentham State Forest (Section 9), Rehoboth State Forest (Section 10), West Bridgewater State Forest, and Bridgewater State Forest (Section 12). They also oversee the DCR's interests in Angle Tree Monument Reservation (Section 1).

11.2. NATURAL RESOURCES

Physical Features

The forest is irregularly shaped, with numerous straight lines and sharp angles along its borders. Mass Wildlife property fills the gaps between disjunct portions of the forest. Elevation is approximately 90 feet at West Meadow Pond. It gently rises to the west and east, reaching maximum elevations of 108 feet near Pearl Road to the west and 118 feet along Stoney Road to the east. Downstream of the dam the elevation is 79 feet, the lowest in the forest.

Water Resources

The forest's most notable features are its water resources, which run north to south. More than half of the forest's area (56.35%) is associated with these wetlands. Waters from West Meadow Brook and Black Betty Brook enter West Meadow Pond from the north and northeast, travel southward through the pond, and exit through a spillway in West Meadow Pond Dam. These waters then flow southward through West Meadow Brook until they exit the property. (Figure 11.1.1) These and other water resources are summarized in Table 11.2.1.

Table 11.2.1. Water resources of West Bridgewater State Forest.

Water Resource	Name or Metric
Watershed:	Taunton
Aquifer:	
Medium Yield (acres)	0.00
High Yield (acres)	0.00
Rivers and Streams (miles)^a	0.00
Vernal Pools	
Certified (#)	0
Potential (#)	2
Wetlands (acres)^b	138.62
Lakes and Ponds (acres)^b	0.10

- a. The portion of West Meadow Brook south of West Meadow Dam is classified by MassGIS as forested wetland, and not as a linear feature. Because of this, there is no metric for the length of this section of brook.
b. Nearly all of West Meadow Pond is classified as wetland by MassGIS.

Over half of the forest is susceptible to floods. (Table 11.2.2) Affected areas include, and are adjacent to, West Meadow Brook, Black Betty Brook, and West Meadow Pond. Infrastructure within this area includes West Meadow Pond Dam, a boat ramp, approximately one-half of the forest's parking lot, and approximately 0.50 miles of unpaired forest roads.

Table 11.2.2. Potential impacts of flooding to West Bridgewater State Forest.

Type of Impact	Acres	%
Flooding:		
100-year Storm	132.64	53.92
500-year Storm ^a	132.64	53.92

- a. Cumulative value; includes 100-year storm impacts.



Predicted flooding at West Bridgewater State Forest; the 100-year flood zone upstream of the dam is represented in blue and the 100-year flood zone downstream of the dam is represented in green. Roads are represented in red. (See Appendix K for photo information.)

Rare Species

Three state-listed species are known from West Bridgewater State Forest. (Table 11.2.3) All are birds associated with the emergent wetlands in West Meadows WMA and adjacent shallow waters in the forest.

Table 11.2.3. State-listed species of West Bridgewater State Forest, as identified by the NHESP.

Species ^{a, b}	Type ^c	MESA ^d
Common moorhen	B	SC
King rail	B	T
Least bittern	B	E

- Presented alphabetically, by common name.
- Fact sheets are available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.
- Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.
- Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.



The king rail is one of three state-listed waterbirds in West Bridgewater State Forest. (See Appendix K for photo information.)

Priority Habitat

Only 13.06 acres (5.31%) of the forest is designated Priority Habitat; it is located along the forest's northern boundary. Priority Habitat polygon PH 1141 is centered on a shallow marsh in West Meadow WMA; only a small portion extends southward into West Meadow Pond and the state forest.

Vegetation

There has been no floristic inventory.

Invasive Species

Invasive species have not been inventoried. Two species were identified on the dam during a brief site visit in November, 2015 (Table 11.2.4)

Table 11.2.4. Known invasive plants of West Bridgewater State Forest.

Species ^a	Status ^b	Source ^c
Common reed	I	1
Oriental bittersweet	I	1

- Presented alphabetically, by common name.
- Plants are classified as being either Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
- Information contained in this table was obtained from the following sources:
 - Incidentally observed by RMP planner.

Natural Communities

There is little information on the forest's natural communities; only three community types, all Palustrine, have been identified. (Table 11.2.5)

Table 11.2.5. Known natural communities of West Bridgewater State Forest.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Deep Emergent Marsh	P	S4	1
Red Maple Swamp	P	S5	1
Shrub Swamp	P	S5	1

- Classified according to Swain and Kearsley (2011).
- E = Estuarine, P = Palustrine, T = Terrestrial.
- The NHESP ranks communities from most rare (S1) to the most common (S5).
- Information contained in this table was obtained from the following sources:
 - DEP Wetlands (1:12,000) data layer.

The DEP Wetlands datalayer indicates the presence of “Shallow Emergent Marsh, Meadow, or Fen” throughout all of West Meadow Pond. This category could apply to multiple natural community types in the state's classification system (Swain and Kearsley 2011).

Forests

Most of the forest is either forested wetland or emergent wetland; upland forest accounts for only 107.06 acres (43.52%). Mason (n.d.) identified the following nine “forest types:”

- White pine, with oaks and hardwoods
- Red maple
- American beech; with oak, birch, maple, and tupelo
- White pine, with scattered hardwoods
- Mature oaks and hardwoods
- White pine with larger hardwoods
- Large diameter white pine, with smaller hardwoods
- White pine overstory with hardwood sawlog and pole stand, and white pine saplings
- Oak and hardwoods in wet soils

Wildlife

The wildlife of West Bridgewater State Forest is undocumented. The wildlife of the adjacent WMA is better known and includes “aquatic furbearers, deer, raccoon, fox, rabbits, squirrel, grouse, ducks, and geese” (MassWildlife 1992). West Meadows WMA is a birding “hotspot” and as of December 2016, 193 species of birds have been recorded (www.ebird.org). This included ducks, herons, rails, and shorebirds, as well as species common to thickets and pine forests. West Meadow Pond contains shallow, warm waters; largemouth bass and pickerel are present (FBA n.d.).

11.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of West Bridgewater State Forest is presented in Table 11.3.1. Cultural Resources are identified in Table 11.3.2.

Five archaeological resources are listed by the MHC as being in or adjacent to the forest. Because the MHC does not make information on archaeological resources available to the general public, most of these are not included in Table 11.3.2.

Table 11.3.1. Significant events in the history of West Bridgewater State Forest.

Year(s)	Events
1935–1936	Department of Conservation acquires approximately 250 acres in the West Meadow area of West Bridgewater, establishing West Bridgewater State Forest.
1949–1954	Department of Conservation identifies and begins acquiring land adjacent to the forest, establishing West Meadows WMA.
1963–1965	West Meadows WMA expands by more than 200 acres.
1964–1965	Dam and spillway replaced and existing dike expanded to create a “water control structure” to “facilitate water level manipulation” in order to develop “an impoundment for waterfowl production and management” (Bridges 1963). This water control structure is West Meadow Pond Dam (MA01072).
2010	Mass Wildlife expands West Meadows WMA by six acres.

Table 11.3.2. Cultural resources of West Bridgewater State Forest.

Location and Resource	Type^a	Date^b	Condition^c	Integrity^d	In Use^e	Utilities^f	MHC #^g	Guidance^h
Old Colony Rail Road	LA	-	-	-	-	-	-	-
Additional Resourcesⁱ								
<i>Ephraim Howard Saw Mill</i>	AR	ca. 1727	-	-	-	-	-	1
<i>Ephraim Howard House</i>	AR	ca. 1742	-	-	-	-	-	1
<i>James Keith, Jr. House</i>	AR	-	-	-	-	-	-	1

- a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- b. Date of construction provided, when known.
- c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- d. Integrity is a relative assessment of the condition of a resource’s retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- f. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- g. Massachusetts Historical Commission inventory number; does not include Historic Archaeology numbers.
- h. The following guidance is offered for the ongoing maintenance of these cultural resources:
1. Refer to Archaeological Features BMP (DCR n.d.g).
- i. Reported in Conant (n.d.), but not field verified.

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

No archaeological surveys have been conducted in the forest, and there are no recorded pre-Contact resources documented. Eleven pre-Contact sites are recorded within a one-mile-radius of the forest and date to the Late Archaic Period (6,000 BP) through to the Woodland Period (450 BP). Records indicate that these sites range from individual “find spots” to a Village Site. The forest has a high archaeological potential for pre-Contact sites and any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

There are no documented historic archaeological sites in the forest. Background research will determine if the forest is sensitive for locating historic period archaeological sites.

Conant (n.d.) identified three post-Contact resources within the forest: the Ephraim Howard saw mill; Ephraim Howard house; and James Keith, Jr. house. None of these resources have been verified.

HISTORIC RESOURCES

The forest is located in a section of West Bridgewater known historically as West Meadow. This meadow contained large areas of native grasses that were used in the early 18th century for the feeding of livestock. In the mid-18th century, West Meadow Brook was dammed in order to create a saw mill (Conant n.d.). During this Early Colonial Period roadways were established throughout what is now the state forest; the area has seen little development since. The only other cultural resource is a line of rail road track located on the western edge of the forest that was installed and operated by Old Colony Rail Road.

Historic Landscapes

Old Colony Rail Road. A portion of the former Old Colony Rail Road is located between Old West Street and the southwest portion of the forest. Approximately 400 feet of rail road abuts the forest. The ties and rails are gone, but the graded bed remains. A similar, isolated section of rail road bed is located immediately north of the West Bridgewater Town Hall, approximately two miles east of the forest.

Buildings

There are no historic buildings.

Structures

There are no historic structures.

Objects

There are no known historic objects.

11.4. RECREATION RESOURCES

Recreation is associated with either West Meadow Pond or the forest’s roads. The following activities are known to take place:

- Bicycling, mountain
- Boating, power
- Canoeing/Kayaking
- Dog walking, on leash
- Fishing
- Geocaching (2 caches as of December, 2016)
- Hiking
- Horseback riding
- Hunting
- Nature study/Photography

The unauthorized use of OHVs is a chronic management issue that has damaged road surfaces, natural resources, and West Meadow Pond Dam.

The only recreation infrastructure is a gravel boat ramp located at the south end of West Meadow Pond. It has one lane and is considered to be in Fair condition (FBA n.d.).



Gravel boat ramp at West Meadow Pond. (See Appendix K for photo information.)

11.5. INFRASTRUCTURE

Property Boundary

The forest, along with West Meadows WMA, constitutes a block of approximately 490 acres of permanently protected state-owned land. An additional 17.5 acres of municipal open space directly abuts these properties. To the northeast and southwest these conservation lands are bordered by undeveloped private lands. To the northwest and southeast is low-density residential development.

A question exists as to whether or not one or more abutters have a deeded right of way through the forest. The deed for 0 Stoney Way (Book 2649, Page 333) identifies “a right of way to and from lot numbered 6 to the road passing through lots two (2), three (3), and four (4)” as indicated “on a plan drawn by Fred Copeland, March 29, 1864.” One abutter, who does not own the property in question, asserts that the right of way passes through the forest along an unnamed forest road that intersects with Stoney Way. This assertion could not be verified during the preparation of this RMP. The Forest and Park Supervisor has elected to not gate this road until the issue is resolved.

Buildings and Structures

There are no buildings, and only one structure, the West Meadow Pond Dam (MA01072). (Table 11.5.1) Construction of the current dam began in November of 1964 and continued through the spring of 1965. It was formally dedicated on July 8, 1966. An earthen dam with a granite block spillway formerly occupied the site. The new dam was higher, and its associated dikes longer, than the previous dam. This resulted in more water being impounded, expanding the area of West Meadow Pond.

Table 11.5.1. Non-historic buildings and structures of West Bridgewater State Forest.

Location and Infrastructure ^a	Date ^c	Condition ^b	In Use ^d	Utilities ^e
West Meadow Pond Dam (MA01072)	1965	5	-	-

- Geographic sub-regions as identified in DCR (2011).
- Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- Date of construction provided, when known.
- Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

The dam is classified as an Intermediate sized dam, with a Significant Hazard Potential, in Poor condition. The most recent Phase 1 inspection/evaluation report identified 12 deficiencies and recommended seven studies and analyses, three recurring maintenance activities, five minor repairs, and four remedial modifications to the dam (GZA GeoEnvironmental, Inc. 2011*b*). Among the deficiencies were: problems with the right abutment; eroded areas; bush and tree growth; standing water across the toe of the dam; standing water across submerged stop logs; deterioration of the spillway; emergent aquatic vegetation obstructing the upstream left side of the spillway; and corrosion/deterioration of the outlet pipe. Follow-up inspections/evaluations restated these deficiencies, recommended implementation of previously identified recommendations, and added a recommendation for continued six-month follow-up inspections (GZA GeoEnvironmental, Inc. 2012). Vegetation management practices intended to reduce illegal use of OHVs has contributed to these deficiencies. (See Section 11.8, below.)

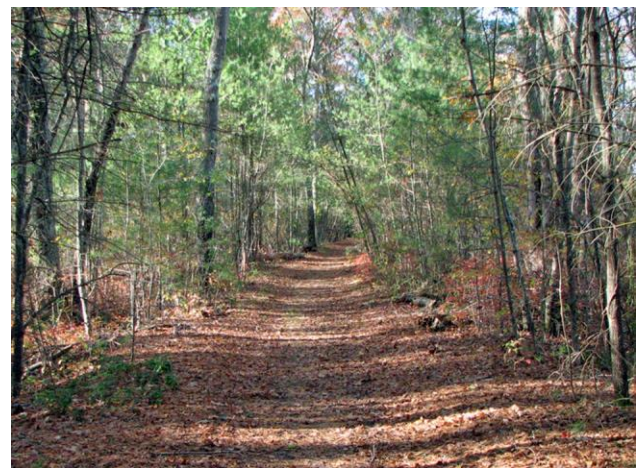
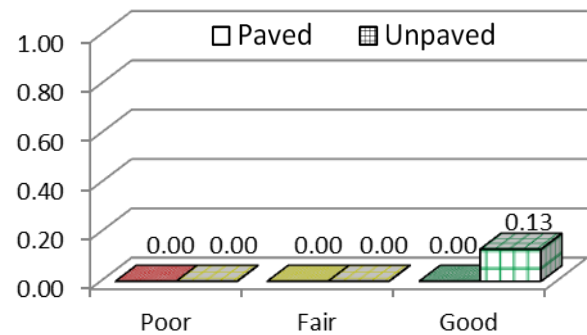


Spillway of West Meadow Pond Dam; the vegetation along the dam is visible to both sides of the spillway. (See Appendix K for photo information.)

Roads

The forest's only public road passes through the parking area. Its length and condition are identified in Figure 11.5.1. There are no administrative roads. Forest roads, which are classified as trails, are discussed elsewhere in this section.

Figure 11.5.1. Condition and length (in miles) of roads at West Bridgewater State Forest.



Largely overgrown, Spring Street serves as the main pathway for the forest's hikers and mountain bikers. (See Appendix K for photo information.)

Parking

There is one formal parking area; it is located off Spring Street, on the east side of the forest. (Table 11.5.2) This lot is used for visitors to the state forest and West Meadow WMA, including vehicles associated with the adjacent boat ramp. The Office of Fishing and Boating Access indicates the lot's capacity as 20 vehicles with trailers (FBA n.d.); this does not reflect actual conditions

Table 11.5.2. Number of public parking spaces, by location and type, at West Bridgewater State Forest.^a

Location	HP	Restricted	Other	Total
Spring Street	0	0	9	9
Total	0	0	9	9

a. Based on 24-foot parallel parking spaces.

The parking area was constructed in 1964 and 1965, along with the dam reconstruction, using Federal-aid Accelerated Public Works funds (Bridges 1963, Anonymous 1964). At that time, specifications called for a 200 x 100 foot parking lot “in the field at the east end of the dam” (Anonymous 1964). It is unclear if the parking area ever reached these dimensions.



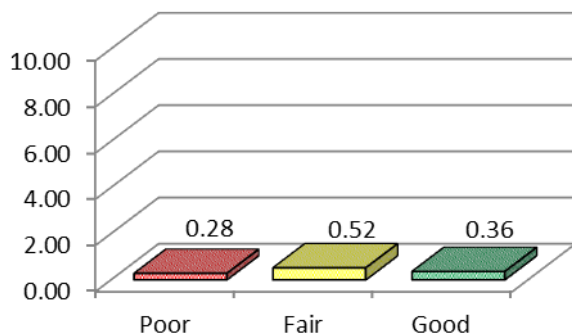
This gravel lot off Spring Street is the forest’s only parking area. (See Appendix K for photo information.)

There is parking for two vehicles off Stoney Road, to the south of the forest’s Main Identification Sign. There is no formal lot at this location.

Trails

There are 1.16 miles of official trails; and 0.67 miles of user-created trails. The condition and extent of official trails are presented in Table 11.5.4.

Figure 11.5.2. Condition and length (in miles) of official trails at West Bridgewater State Forest.



Forest roads are the primary travel corridors and serve as the trails system. The longest trail segment follows a portion of Spring Street; a road that once

extended from downtown West Bridgewater to a point near where Walnut Street crosses Route 24 (Conant n.d.). The forest’s creation resulted in this segment being closed to the public. Other forest roads that once provided local landowner access are also elements of the trails system. All are officially closed to vehicles, but unauthorized four-wheel-drive vehicle and OHV use is common. This illegal use has damaged the trails’ surfaces.

Kiosks and Signs

A Main Identification Sign is located along Stoney Road, near the forest’s southern boundary. There is no sign at the forest’s main entrance (i.e., Spring Street) or parking area to identify the property as a state forest or to identify regulations.



Main entrance sign along Stoney Road, West Bridgewater. (See Appendix K for photo information.)

Iron Ranger

There is no iron ranger.

Memorials and Markers

A memorial to Alex Gureckis, a sportsman from West Bridgewater, was created in 2015 on the downslope of West Meadow Dam, to the west of the spillway. This portion of the dam is owned by Mass Wildlife. The memorial consists of a granite marker and an ornamental garden surrounded by a ring of stones. During a November 2015 site visit, a pumpkin, artificial flowers, and a mylar balloon were also present. Neither the DCR nor Mass Wildlife authorized creation of this memorial.



The marker is part of an unauthorized memorial located on the dam's downslope. (See Appendix K for photo information.)

11.6. INTERPRETATION

There is no regular interpretive programming, and there are no interpretive panels.

11.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

This property is unstaffed. The Forest and Park Supervisor from F. Gilbert Hills is responsible for the operation and maintenance of this forest.

Partnerships and Volunteers

DCR and Mass Wildlife employees work cooperatively to manage the joint forest and WMA. There are no other partnerships or ongoing volunteer efforts.

Safety

The West Bridgewater Fire Department provides fire response and emergency services. Additional support is provided by Fire District 2 personnel based at Myles Standish State Forest. The West Bridgewater Police Department, Massachusetts State Police (Station D-4, Middleborough), and the Massachusetts Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

There are no Conservation Trust Fund revenues dedicated to West Bridgewater State Forest.

Retained Revenue

The forest does not generate or retain revenue.

Other Revenues

There are no other revenues.

11.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs, legal agreements, and institutional knowledge. This section describes those practices unique to the management of West Bridgewater State Forest. No key legal agreements were identified for this property. The cooperative management of the forest and WMA by DCR and Mass Wildlife takes place without a formal agreement. (See Section 11.1 for an overview of the history of management.)

No key legal agreements were identified for this property. Key planning documents are identified in Table 11.8.1.

Table 11.8.1. Key management and guidance documents for Bridgewater State Forest.

Author and Document	Year
GZA GeoEnvironmental, Inc.	2012 ^b
West Meadow Pond Dam. Follow-up inspection/evaluation report.	

Annual Maintenance

There are no regular activities; all maintenance is performed on an as needed basis.

Natural Resources

Water Resources

The DCR Office of Dam Safety identifies the DCR as the owner and operator of the dam. As such, it is responsible for regulating the water level in West Meadow Pond. Mass Wildlife may also regulate the water level. Occasionally, members of the public remove stop logs resulting in changes to the water level.

Rare Species

There are no rare species monitoring or management activities.

Invasive Species

There is no monitoring or management of invasive plants.

Vegetation

There are no CFI plots.

A Timber Stand Improvement (TSI) cut was performed in 1977 on a 10.3 acre stand of white pine off Stoney Road (Mason n.d.). It is unknown if additional TSI cuts or harvests have been conducted since.

Frequent illegal use of OHVs has resulted in erosion of soils at the crest of the dam. Efforts to block OHV access to the dam resulted in OHVs riding through the pond shore and adjacent pond. When this occurred, property managers made the deliberate decision to let vegetation along the dam grow, so that it would form a barrier to OHVs. Although this approach to vegetation management has limited OHV access to the dam, it has also resulted in deficiencies in the dam's condition.



Road across West Meadow Pond Dam; note the extent of vegetation to both the downstream (left) and pond (right) sides of the dam. (See Appendix K for photo information.)

Wildlife

Under DCR's Forest and Park Regulations (302 CMR 12.11), fishing and hunting are allowed in the forest.

Mass Wildlife does not stock fish in West Meadow Pond; waterfowl are banded every few years (Zimmer 2015).

Cultural Resources

There are no management practices unique to this forest.

Recreation Resources

According to the Office of Fishing and Boating Access, the boat ramp is maintained by Mass Wildlife (FBA n.d.).

Infrastructure

Boundary

Historically, boundary marking was performed cooperatively with Mass Wildlife (e.g., Kenney 1958). Currently, boundary markings are maintained by the Regional Forester.

Buildings and Structures

There are no buildings to repair or maintain. The West Meadow Pond Dam is identified by DCR's Office of Dam Safety as being owned by the DCR; making its maintenance the responsibility of the agency. However, the dam is situated on both DCR and Mass Wildlife-owned parcels and was constructed by the Division of Fisheries and Game for the purposes of waterfowl production and management. Prior to its construction, maintenance responsibility for the dam was identified as follows:

"As in all wildlife development projects undertaken with Federal-aid funds, the Division of Fisheries and Game must be responsible for maintenance and operation of all roads, structures, parking areas, and clearings for wildlife habitat improvement. This commitment for maintenance is written into all Federal-aid projects" (Bridges 1963).

It is unclear how and when the DCR acquired sole responsibility for maintaining this dam.

Roads

The public road into the forest (i.e., Spring Street) is believed to be maintained by the West Bridgewater Highway/Vehicle Maintenance Department (Zimmer 2015).

Parking Areas

The DCR and Mass Wildlife jointly maintain the parking area. Neither agency plows snow.

Trails

Within the forest and adjacent WMA, forest roads are jointly maintained by DCR and Mass Wildlife on an as needed basis.

Kiosks and Signs

The Main Identification Sign was installed by the Forest and Park Supervisor from F. Gilbert Hills State Forest; they are responsible for its maintenance.

11.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of West Bridgewater State Forest. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 11.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 11.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

- No sections of West Bridgewater State Forest have been designated Zone 1.

Zone 2

- All areas not specifically designated as Zone 3.

Zone 3

- The existing dam, parking lot, and boat ramp area.

Significant Feature Overlay

There is no Significant Feature Overlay.

Management Recommendations

Four priority management recommendations were developed for West Bridgewater State Forest. (Table 11.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

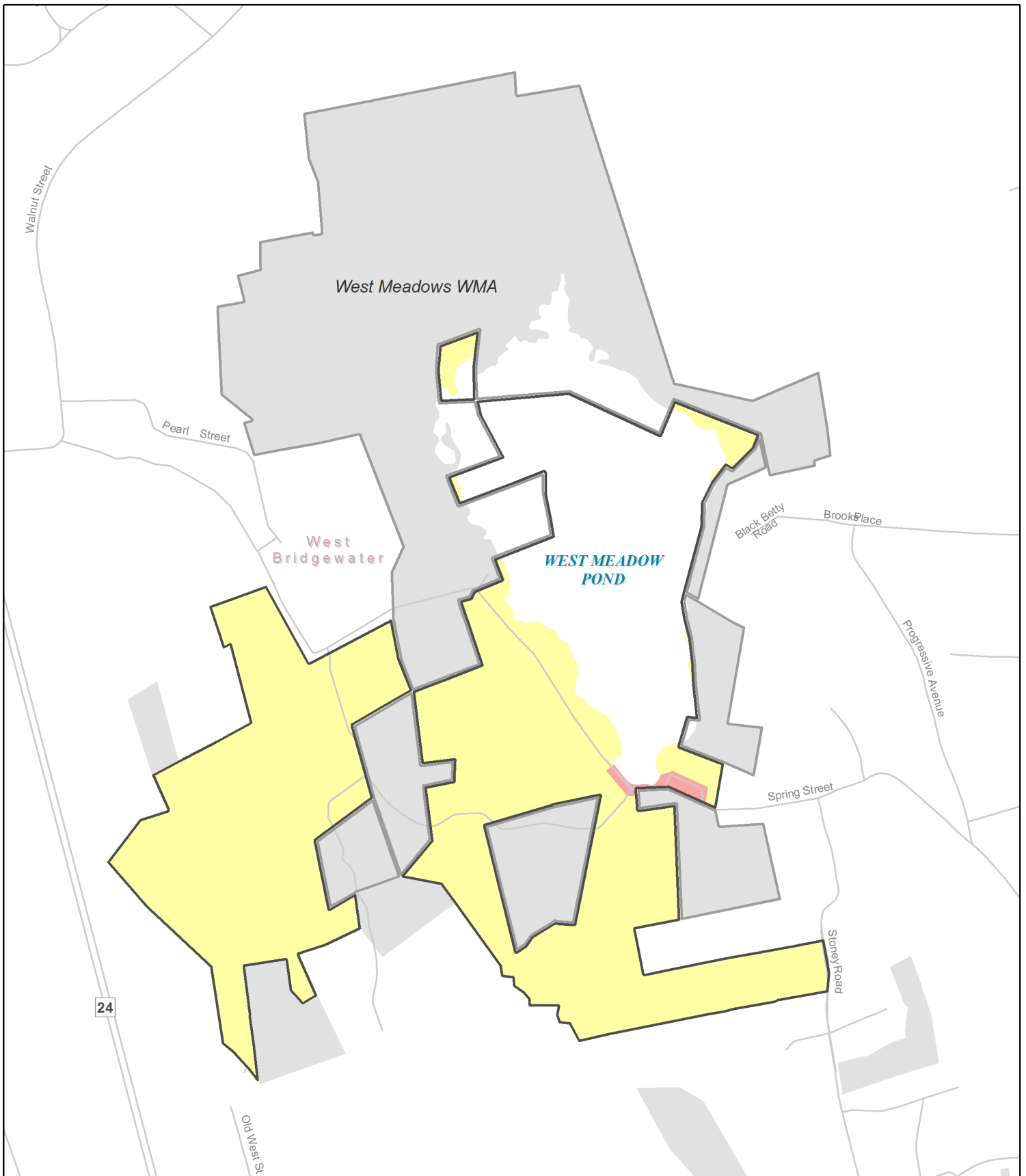
Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.

Table 11.9.1. Priority recommendations for West Bridgewater State Forest.

Recommendation	Implementation^a
Address dam deficiencies, as identified in GZA GeoEnvironmental, Inc. (2012b).	C, D, R, V
Create barricades across the upstream and downstream slopes of the dam in a manner that prohibits OHV access while allowing for ongoing vegetation management.	D, R, V
Gate or otherwise block access points to stop illegal access by four-wheel-drive vehicles and OHVs.	R
Conduct deed research to determine if the deeded right of way held by abutters at 0 Stoney Road includes parcels within the forest.	C, P, L

a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.



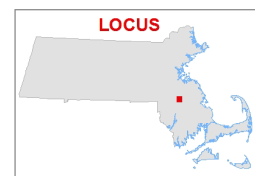
- | | |
|-------------------------------|-------------------------|
| West Bridgewater State Forest | Land Stewardship Zoning |
| West Meadows WMA | Zone 1 |
| Other Legal Interest - DCR | Zone 2 |
| Other Protected Open Space | Zone 3 |

West Bridgewater State Forest

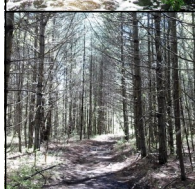
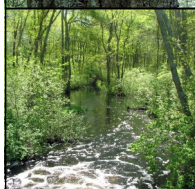
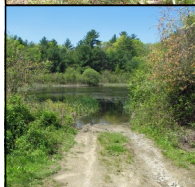
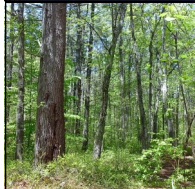
Figure 11.9.1

Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS, 2016



1,000
Feet



West Bridgewater State Forest

West Bridgewater State Forest, along with West Meadows Wildlife Management Area (WMA), constitutes a block of approximately 490 acres of permanently protected open space. These two properties are interconnected both physically and from a management perspective. The state forest is managed for passive recreation including hiking, mountain biking, nature observation, kayaking, hunting, and fishing. Although all these activities also take place on the WMA, it is primarily managed for wildlife habitat and wildlife-related recreation (i.e., fishing, and hunting). There is little development at either property.

Top Attractions

- Trails network
- West Meadow Pond

Friends Group

- None

Partners & Permittees

- MassWildlife

Conservation Opportunities

- Barricade the upstream and downstream slopes of the West Meadow Pond Dam in a manner that prohibits OHV access while allowing for ongoing vegetation management.
- Gate or otherwise block access points to stop illegal access by four-wheel-drive vehicles and OHVs.

Park Inventory

Date Established: 1935

Landscape Designation
Parkland

Management

This park is managed by staff from F. Gilbert Hills State Forest.

Park Size (acres)

Total Area:	246.0
Wetlands:	138.6
Lakes and Ponds:	0.1

Rare Species

State-listed:	3
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Cultural Resources

Documented:	1
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Miles of Roads

Paved:	0.0
Unpaved:	0.1

Miles of Trails

Official:	1.2
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DCR Recreation Facilities

Boat Launch:	1
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Bridgewater State Forest, as viewed from Water Street. (See Appendix K for photo information.)

SECTION 12. BRIDGEWATER STATE FOREST

12.1. INTRODUCTION

Bridgewater State Forest is located in the town of Bridgewater; south of Route 104 and east of Water Street. (Figure 12.1.1) It is located approximately 16.4 miles southeast of F. Gilbert Hills State Forest.

In the early 1900s the Commonwealth acquired a number of properties with the intent of creating commercially viable forests. These reforestation lots, as they were called, were largely managed through the planting of trees and cutting of brush. Bridgewater State Forest was one such lot. In 1925 the Commonwealth acquired the George M. Baker reforestation lot; it was later renamed Bridgewater State Forest.

The property was historically a working forest, with tree plantations and at least one commercial harvest. However, its Parkland landscape designation prohibits commercial timber harvesting. Future tree cutting is restricted to supporting recreation and ameliorating public safety hazards (DCR 2012a).

Bridgewater State Forest is a small, little known property with no infrastructure and few known recreational uses. It helps protect the quality of water entering South Brook and also functions as protected open space for adjacent residential development.

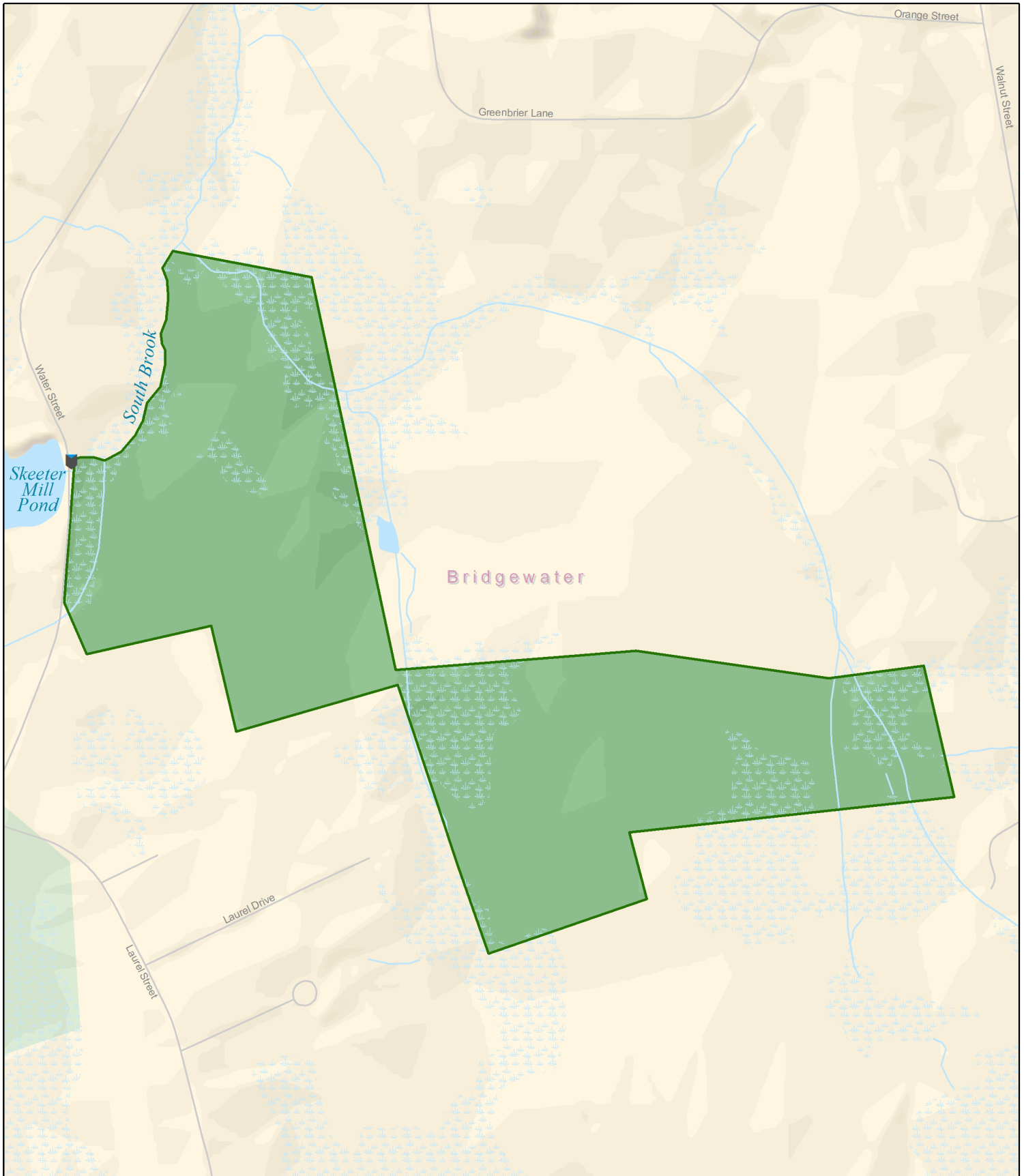
The forest’s physical, political, and regulatory attributes are summarized in Table 12.1.1.

Table 12.1.1. Physical, political, and regulatory settings of Bridgewater State Forest.

Setting	Name or Metric
Location:	Bridgewater
Area (acres)^a:	60.73
Perimeter (miles)^a:	2.02
Landscape Designation^b:	Parkland
Legislative Districts:	
House	8 th Plymouth
Senate	First Plymouth and Bristol
Regulatory Designation:	None identified

- a. Calculated using a Geographic Information System (GIS).
- b. For a summary of DCR’s landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.

Associated Properties. There are no associated properties.



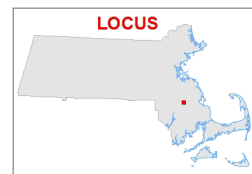
- Bridgewater State Forest
- Blue Hills Complex Land
- Other Protected Open Space
- DCR Legal Interest
- Dam
- Public Parking

Bridgewater State Forest

Figure 12.1.1

1,000

Feet



Geographic information provided by MassGIS and DCR GIS. 2016

The Forest and Park Supervisor from F. Gilbert Hills State Forest manages, as time and resources permit, several DCR properties, including F. Gilbert Hills State Forest (Section 6), Bristol Blake State Reservation (Section 7), Franklin State Forest (Section 8), Wrentham State Forest (Section 9), Rehoboth State Forest (Section 10), West Bridgewater State Forest (Section 11), and Bridgewater State Forest. They also oversee the DCR's interests in Angle Tree Monument Reservation (Section 1).

12.2. NATURAL RESOURCES

Physical Features

The forest is a single parcel with two lobes and a "constriction" in the middle, creating an outline similar to that of a bowtie. An unnamed stream passes through the "constriction." Elevation is highest (approximately 60 feet above sea level) in the eastern lobe and drops to the northwest. The lowest elevation, approximately 40 feet, occurs along South Brook on the forest's western boundary.

Water Resources

The forest borders South Brook, a tributary of Town Brook that itself is a tributary of the Taunton River. Approximately 20.2% of the forest is covered in wetlands, primarily red maple swamps. Most of these swamps are connected to South Brook via streams, with water flowing northwestward toward the brook. These and other water resources are summarized in Table 12.2.1.

Table 12.2.1. Water resources of Bridgewater State Forest.

Water Resource	Name or Metric
Watershed:	Taunton
Aquifer:	
Medium Yield (acres)	0.00
High Yield (acres)	0.00
Rivers and Streams (miles)	0.02
Vernal Pools	
Certified (#)	0
Potential (#)	0
Wetlands (acres)	13.22
Lakes and Ponds (acres)	0.09

Approximately 40% of the forest is susceptible to floods. (Table 12.2.2) This number reflects the

forest's topography, and its proximity and hydrological connections to South Brook.

Table 12.2.2. Potential impacts of flooding to Bridgewater State Forest.

Type of Impact	Acres	%
Flooding:		
100-year Storm	25.52	42.02
500-year Storm ^a	25.52	42.02

a. Cumulative value; includes 100-year storm impacts.

South Brook Dam (MA02398), a 225-foot long dam owned and operated by the Town of Bridgewater, is located just outside the forest along Water Street. Water levels in Skeeter Mill Pond (i.e., behind the dam) are approximately 10 feet higher than downstream levels. The dam is classified as a Small sized dam, in Fair physical condition, and having a Significant Hazard Potential (Nover-Armstrong Associates, Inc. 2012). Dam failure would result in downstream flooding, including parts of the forest. However, there is no infrastructure within the forest.

Rare Species

State-listed Species

There are no confirmed state-listed species. A photo of an eastern box turtle, identified as taken on April 23, 2016 is posted on Geocaching.com.

Priority Habitat

There is no Priority Habitat.

Vegetation

There has been no floristic inventory of this forest.

Invasive Species

Invasive species have not been surveyed.

Natural Communities

There is virtually no information on the forest's natural communities; only one community type has been confirmed. (Table 12.2.3)

Table 12.2.3. Known natural communities of Bridgewater State Forest.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Red Maple Swamp	P	S5	1

- Classified according to Swain and Kearsley (2011).
- E = Estuarine, P = Palustrine, T = Terrestrial.
- The NHESP ranks communities from most rare (S1) to the most common (S5).
- Information contained in this table was obtained from the following sources:
 - DEP Wetlands (1:12,000) data layer.

Forests

Most of the forest (47.45 acres, 78.13%) is covered in upland forest. Mason (1976a) identified the following five stand types:

- White pine
- Red pine

- Residual white pine
- White pine, red pine, and hardwoods
- Red maple

A three acre red pine plantation is located on the western half of the forest (Gregory 2015b).

Wildlife

The wildlife of Bridgewater State Forest is undocumented.

12.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Bridgewater State Forest is presented in Table 12.3.1. Cultural Resources are identified in Table 12.3.2. There are no archaeological resources listed by the MHC for this forest.

Table 12.3.1. Significant events in the history of Bridgewater State Forest.

Year(s)	Events
1925	Commonwealth acquires approximately 60 acres off Water Street from George M. Baker and establishes Bridgewater State Forest. (Book 1496, Page 210)
1954	Salvage logging performed following a hurricane that blew down merchantable pine (Cook 1955).
1976	Approximately 27,000 board feet of white pine is harvested from 10.5 acres in the central portion of the forest (Mason 1976).

Table 12.3.2. Cultural resources of Bridgewater State Forest.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Stone walls	ST	-	3	H	-	-	-	1

- Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- Date of construction provided, when known.
- Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.
- The following guidance is offered for the ongoing maintenance of these cultural resources:
 - Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

No archaeological surveys have been conducted in the forest, and there are no recorded pre-Contact resources. Many pre-Contact sites near the forest have been located in margins of wetlands associated with the Taunton River. The forest has a high archaeological potential for pre-Contact sites and any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

There are no documented post-Contact resources. Background research will determine if the forest is sensitive for locating historic period archaeological sites.

HISTORIC RESOURCES

The forest is located 1.25 miles southeast of downtown Bridgewater and is bordered by Water and Laurel Streets; two roadways that were well used during the Colonial Period. In addition, nearby South Brook Dam “may have originally been used for mechanical power generation in association with a mill” (Nover-Armstrong Associates, Inc. 2012). Given these factors, early industrial activity may have taken place within what is now the forest. However, there are no known resources.

Historic Landscapes

There are no known historic landscapes.

Buildings

There are no historic buildings.

Structures

Along the stretch of Water Street that intersects with South Brook, a stone wall runs parallel to the road. Another stretch of stone wall exists in the southern section of Bridgewater State Forest.

Objects

There are no known historic objects.

12.4. RECREATION RESOURCES

There are no recreation facilities or infrastructure, only the following authorized recreation activity is known to take place.

- Geocaching (1 cache as of December, 2016)
- Hunting

12.5. INFRASTRUCTURE

Property Boundary

The forest is located between Water and Walnut streets, to the south of Route 104. It is bounded on the north and south by unprotected undeveloped land and to the east and west by residential development. The forest’s western boundary has frontage on both Water Street and South Brook.

Buildings and Structures

There are no non-historic buildings or structures.

Roads

There are currently no mapped roads. A map associated with a 1976 tree harvest identifies a simple road network (Mason 1976b). This network no longer exists.

Parking

There is no formal parking area; limited parking (approximately three spaces) is available on the west shoulder of Water Street adjacent to the dam. Additional parking is located immediately north and west of the dam.

Trails

There are no official trails.

Kiosks and Signs

A Main Identification Sign is located in the treeline along Water Street. There is no kiosk.

Iron Ranger

There is no iron ranger.

Memorials and Markers

There are no known memorials or markers. However, the forest has not been inventoried for these markers, so some may be present.

12.6. INTERPRETATION

There is no regular interpretive programming, and there are no interpretive panels.

12.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

This property is unstaffed. The Forest and Park Supervisor from F. Gilbert Hills State Forest is responsible for the operation and maintenance of this forest.

Partnerships and Volunteers

There are no partnerships or ongoing volunteer efforts.

Safety

Bridgewater Fire Department provides fire response and emergency services. Additional support is provided by Fire District 2 personnel, based at Myles Standish State Forest. The Bridgewater Police Department, Massachusetts State Police (Station D-4, Middleborough), and the Massachusetts Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

There are no Conservation Trust Fund revenues dedicated to Bridgewater State Forest.

Retained Revenue

The forest does not generate or retain revenue.

Other Revenues

There are no other revenues.

12.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs, legal agreements, and institutional knowledge. This section describes those practices unique to the management of Bridgewater State Forest. No key legal agreements were identified for this property.

Only one key planning document was discovered during the preparation of this RMP, it is identified in Table 12.8.1.

Table 12.8.1. Key management and guidance documents for Bridgewater State Forest.

Author and Document	Year
Gannett Fleming, Inc. Environmental Audit Report: Bridgewater State Forest, Bridgewater, Massachusetts.	1998

Annual Maintenance

There are no regular activities; all maintenance is performed on an as needed basis.

Natural Resources

Water Resources

The DCR does not conduct any water management activities at this forest.

Rare Species

Because there are no known rare species, there are no rare species monitoring or management activities.

Invasive Species

There is no monitoring or management of invasive plants.

Vegetation

There are no CFI plots.

A shelterwood cut of approximately 27,000 board feet of white pine took place on 10.5 acres of the forest in 1976 (Mason 1976b). At that time it was estimated that the forest had not been cut in over 60 years.

Wildlife

Under DCR's Forest and Park Regulations (302 CMR 12.11), fishing and hunting are allowed in the forest. However, the proximity of occupied dwellings and paved roads means that much of the forest cannot be legally hunted.

Cultural Resources

There are no management practices unique to this forest.

Recreation Resources

There are no recreation resources or infrastructure to maintain.

Infrastructure

Boundary

The Regional Forester maintains the boundaries.

Buildings and Structures

There are no buildings to repair or maintain.

Roads

There are no roads to maintain.

Parking Areas

There is no parking area to maintain.

Trails

There are no official trails to maintain.

Kiosks and Signs

The Main Identification Sign was installed by the Forest and Park Supervisor from F. Gilbert Hills State Forest, who is responsible for its maintenance.

12.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Bridgewater State Forest. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 12.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 12.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

No sections of Bridgewater State Forest have been designated Zone 1.

Zone 2

The entire Bridgewater State Forest has been designated Zone 2.

Zone 3

No sections of Bridgewater State Forest have been designated Zone 3.

Significant Feature Overlay

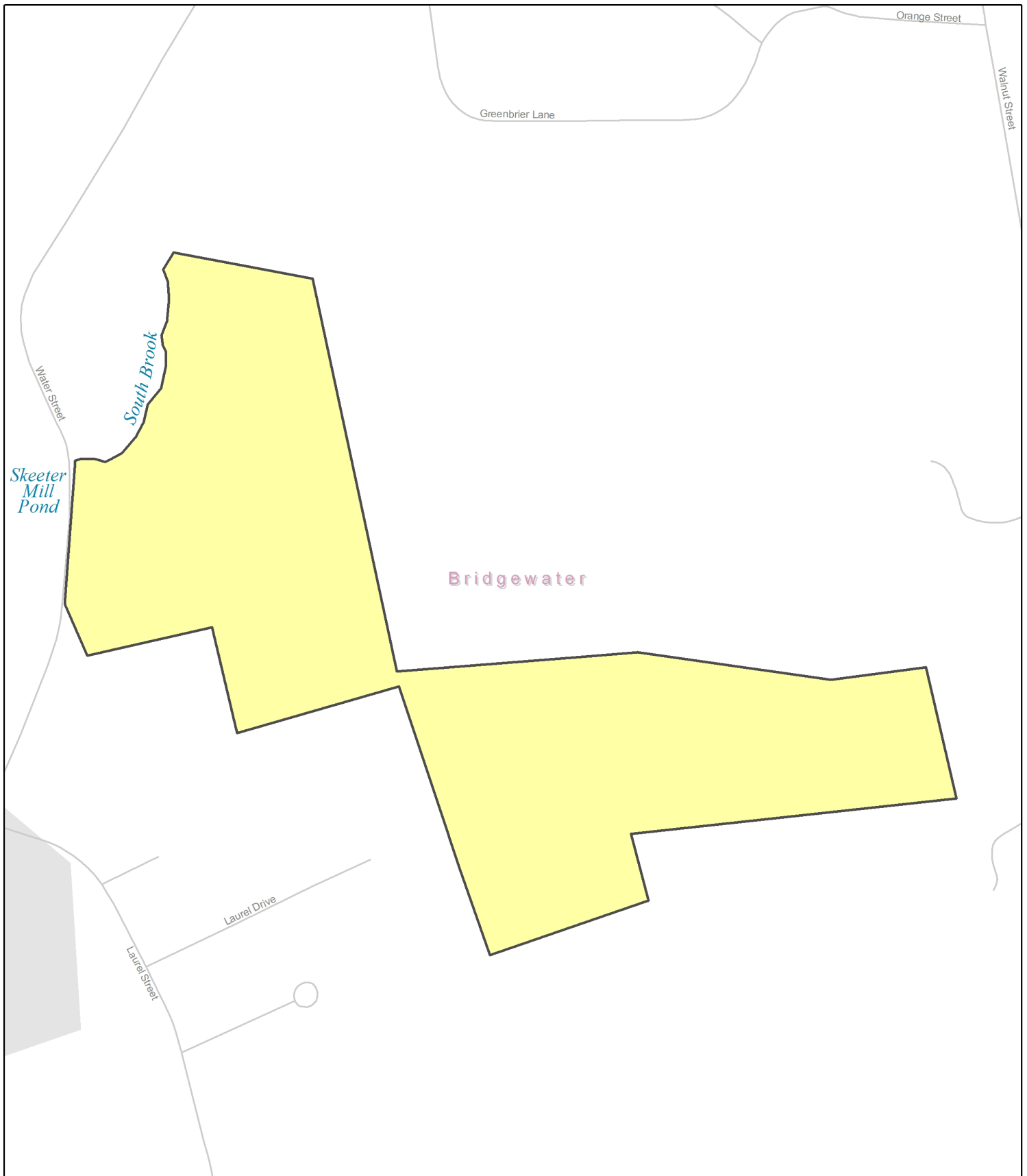
There is no Significant Feature Overlay.

Management Recommendations

There are no priority management recommendations; current management activities are sufficient for ensuring consistency among recreation, resource protection, and forest management. For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.



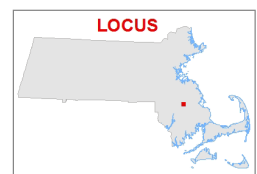
- | | |
|----------------------------|--------------------------------|
| Bridgewater State Forest | Land Stewardship Zoning |
| Other Legal Interest - DCR | Zone 1 |
| Other Protected Open Space | Zone 2 |
| | Zone 3 |

Bridgewater State Forest

Figure 12.9.1

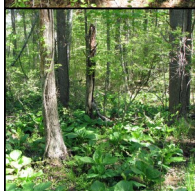
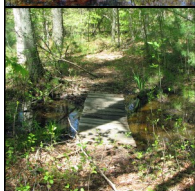
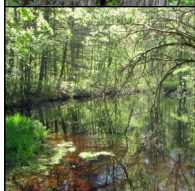
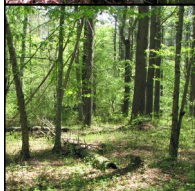
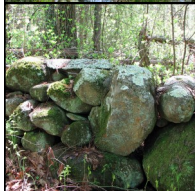
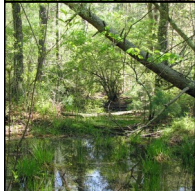
Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS, 2016



1,000

Feet



Bridgewater State Forest

Bridgewater State Forest is a small, little known property with no recreation infrastructure and few known uses. This property was acquired as a reforestation lot and has historically been a working forest. Because of this, no formal trail system or parking area was developed. Recreation is limited to off-trail based activities, such as hunting. This property protects the quality of water entering South Brook and also functions as protected open space for adjacent residential development.

Top Attractions

- Hunting

Friends Group

- None

Partners & Permittees

- None

Conservation Opportunities

- The Resource Management Plan does not make any recommendations for this property.

Park Inventory

Date Established: 1925

Landscape Designation
Parkland

Management

This park is managed by staff from F. Gilbert Hills State Forest.

Park Size (acres)

Total Area:	60.7
Wetlands:	13.2
Lakes and Ponds:	0.1

Rare Species

State-listed:	0
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Cultural Resources

Documented:	1
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Miles of Roads

Paved:	0.0
Unpaved:	0.0

Miles of Trails

Official:	0.0
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DCR Recreation Facilities

This is a natural area, DCR does not maintain any constructed recreation facilities at this park.



The historic Ames Mansion is the symbol of Borderland State Park. (See Appendix K for photo information.)

SECTION 13. BORDERLAND STATE PARK

13.1. INTRODUCTION

Borderland State Park (Borderland) is located in the towns of Sharon and Easton, approximately 9 miles southwest of the Blue Hills Reservation. (Figure 13.1.1) It straddles the boundaries of Norfolk and Bristol counties, and the Neponset and Taunton watersheds.

The interconnectedness of Borderland's natural and cultural histories is at the forefront of the visitor experience. Large grassy fields, forest roads, and stone walls from 18th and 19th century farms occur next to ponds, formal paths, and a house constructed as parts of an early 20th century estate. The Ames Mansion, which symbolizes Borderland, has an exterior of locally cut field stones; further making the connection between the human and natural landscapes.

Borderland was acquired by the Commonwealth in 1971 and officially opened in the summer of 1973. It was immediately popular with the public, who walked its forest roads and paths well before its formal opening. When the visitor center opened in 1994, a 250 car parking lot was constructed to supplement the original 33 car lot. On most weekend afternoons, from spring through fall, the park's

parking lots reach their capacity by late morning. With these cars come hundreds of visitors who hike or cycle Borderland's trails, play disc golf, ride horses, walk their dogs, geocache, tour the Ames Mansion, or picnic beneath a tree. An estimated 318,485 guests visited Borderland in 2015.

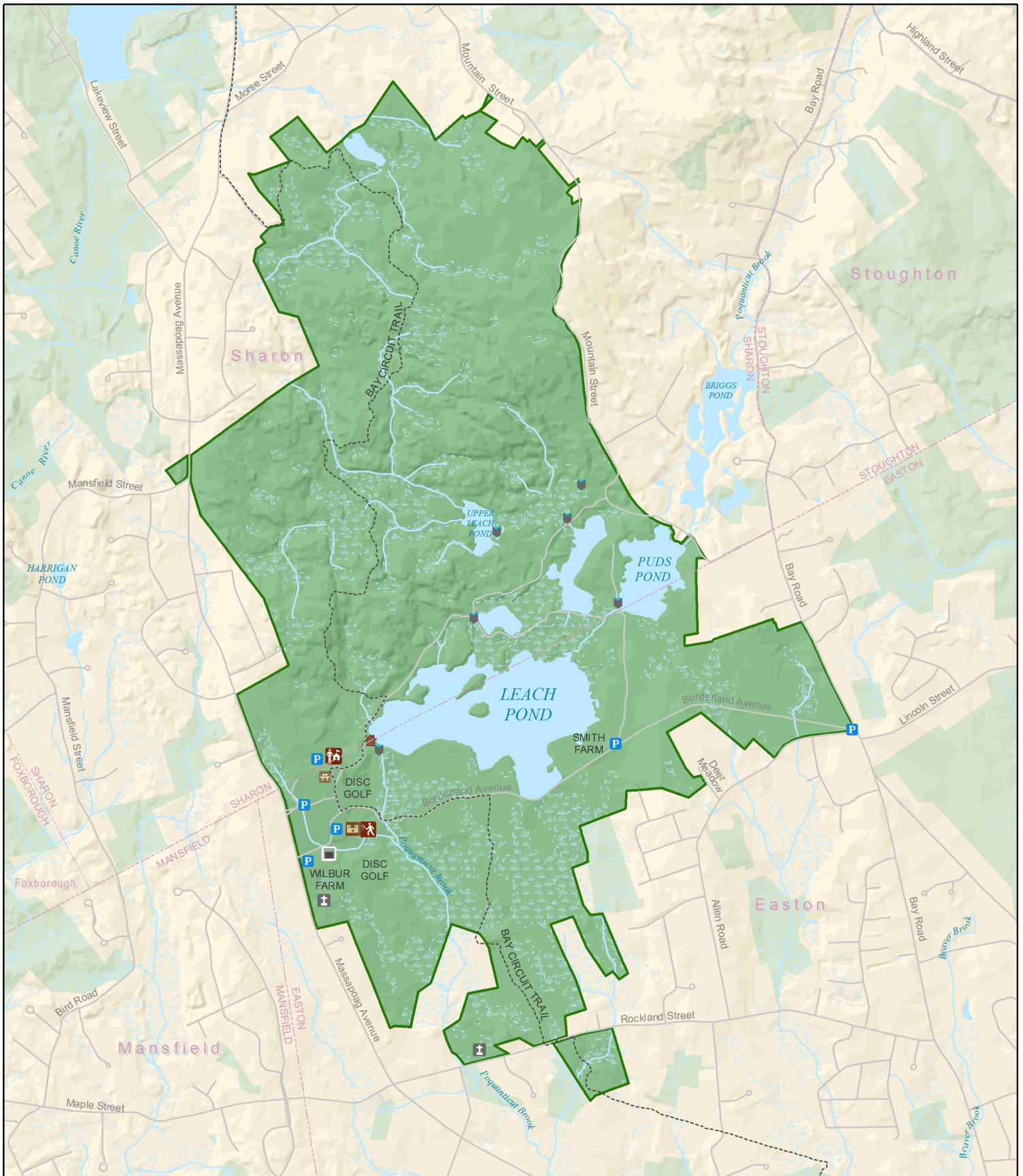
This much visited park's physical, political, and regulatory attributes are summarized in Table 13.1.1.

Table 13.1.1. Physical, political, and regulatory settings of Borderland State Park.

Setting	Name or Metric
Location:	Easton, Sharon
Area (acres)^a:	1,843.03
Perimeter (miles)^a:	12.67
Landscape Designation^b:	Parkland
Legislative Districts:	
House	8 th Norfolk 11 th Plymouth
Senate	Norfolk, Bristol, and Plymouth
Regulatory Designations:	Priority Habitat National Register Historic District Canoe River Aquifer ACEC

a. Calculated using a Geographic Information System (GIS).

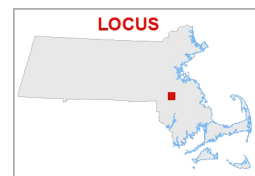
b. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.



Borderland State Park

Figure 13.1.1

1,000
Feet



Geographic information provided by MassGIS and DCR GIS, 2016

Associated Properties. There are no associated properties.

13.2. NATURAL RESOURCES

Physical Features

Borderland's topography varies between towns. The highest elevation, approximately 365 feet above sea level, occurs along Mountain Street in Sharon. From this point, the land slopes both north and westward toward wetlands (approximately 285 feet in elevation), and southward toward Leach Pond (approximately 205 feet in elevation). A number of hills, reaching up to 324 feet, occur along the park's western boundary. Elevations in Easton are lower and the topography more level. The highest elevations in Easton, approximately 250 feet, occur along the park's boundaries to both the east and west of Leach Pond. The area between these hills forms a flat, broad valley. Most buildings and visitor facilities are located in this relatively level area. The lowest elevation, approximately 187 feet, occurs along Poquanticut Brook at Rockland Street.

Water Resources

The park's water resources, many of which have been highly modified, are among its most prominent features. These and other water resources are summarized in Table 13.2.1.

Table 13.2.1. Water resources of Borderland State Park.

Water Resource	Name or Metric
Watersheds:	Neponset Taunton
Aquifer:	
Medium Yield (acres)	119.08
High Yield (acres)	5.77
Rivers and Streams (miles)	3.12
Vernal Pools	
Certified (#)	0
Potential (#)	20
Wetlands (acres)	331.28
Lakes and Ponds (acres)	152.89

Borderland straddles the Neponset and Taunton watersheds, with the dividing line in Sharon, to the north of the Quarry Loop Trail. Waters originating north of this point flow toward Massapoag Lake and the Neponset River. South of this point, waters flow

toward the park's ponds, Poquanticut Brook, and the Taunton River.

The park's major ponds were artificially created. Leach Pond was created in 1825 by damming and cutting Poquanticut cedar swamp in order to provide water for an ironworks in Easton (Pearl et al. 1997). Upper Leach Pond and Pud's Pond were created by the Ames family "to enhance the natural surroundings of their estate" (Pearl et al. 1997). Many of the dikes and dams constructed to create these ponds and regulate water levels remain intact and in use. (See Section 13.3 for additional information on these cultural resources.)



Low water levels reveal stone walls running across a pond bottom; an indication that agricultural use predates the pond. (See Appendix K for photo information.)

There was insufficient information on the water quality of Leach Pond, Upper Leach Pond, and Pud's Pond for the DEP to identify appropriate uses (DEP 2013). There are no Public Health Fish Consumption Advisories for any of the ponds (HHS 2015).

There are no Certified Vernal Pools, but 20 Potential Vernal Pools (PVPs) are broadly distributed throughout Borderland. Eight trail segments are located within 100 feet of these PVPs.

Approximately 30 percent of Borderland is susceptible to flooding. (Table 13.2.2) Leach, Upper Leach, and Pud's ponds and adjacent uplands are predicted to be impacted by a 100-year flood. Poquanticut Brook, associated uplands, and areas of red maple swamp between Leach Pond and Rockland Street are also predicted to be impacted. Affected infrastructure includes approximately 0.50 miles of the "Pond Walk" between Leach and Upper Leach ponds, and a bird blind along this trail. Many

of the ponds, wetlands, and streams north of Upper Leach Pond are predicted to be impacted by 500-year floods. Approximately 1.44 miles of trails, including 0.08 miles of the Bay Circuit Trail, are included in the impacted area.

Table 13.2.2. Potential impacts of flooding to Borderland State Park.

Type of Impact	Acres	%
Flooding:		
100-year Storm	330.99	17.96
500-year Storm ^a	545.84	29.62

a. Cumulative value; includes 100-year storm impacts.



Predicted flooding around Leach Pond; shown in the center of the image. Areas impacted by the 100-year flood zone are represented in green and the 500-year zone in orange. Trails and roads are identified in red. The solid red line running from left to right across the bottom half of the image is Borderland Road. The diagonal yellow line running through Leach Pond is the Sharon-Easton town line. (See Appendix K for photo information.)

Rare Species

State-listed Species

Four state-listed species are known from Borderland. (Table 13.2.3) Three of these, the turtles and salamander, require a mixture of wetlands and forested uplands. They may occur in appropriate habitat throughout the entire park. The data-sensitive animal is associated with fields and rocky slopes. Appropriate habitat occurs in the park within the Town of Easton, and on adjacent private lands.

Six species of state-listed birds have been observed during migration. Common loon and northern parula in the spring and pied-billed grebe, northern harrier, sharp-shinned hawk, and blackpoll warbler in the fall (eBird 2012). Observations of state-listed

species in migration are not included in the NHESP data set or Table 13.2.3.

Table 13.2.3. State-listed species of Borderland State Park, as identified by the NHESP.

Species ^{a, b}	Type ^c	MESA ^d
Blanding's turtle	R	T
Data sensitive animal ^e	-	E
Eastern box turtle	R	SC
Marbled salamander	A	T

a. Presented alphabetically, by common name.

b. Fact sheets are available at:

<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/ mesa-list/list-of-rare-species-in-massachusetts.html>.

c. Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.

d. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

e. Name not release in accordance with the NHESP's policy for organisms susceptible to collection.



The Blanding's turtle requires a variety of wetland and upland habitats including vernal pools, emergent marshes, scrub-shrub wetlands, and open uplands (NHESP 2015c). (See Appendix K for photo information.)

Priority Habitat

Nearly all of Borderland (1,661.71 acres, 90.16%) is designated Priority Habitat. Exceptions include a portion of the park in Sharon near the intersection of Massapoag Avenue and Mansfield Street, and a portion in Easton near the intersection of Borderland Avenue, Allen Road, and Bay Road. The Priority Habitat polygon (PH 367) extends well beyond the boundaries of the park, and includes Rattlesnake Hill to the northeast and portions of Sharon, Mansfield, and Easton to the southwest.

Vegetation

Borderland's vegetation has been shaped through changes in land use (e.g., farming, creation of ponds) and the introduction of ornamental and non-native plants as part of Oakes Ames' interest in botany and vision for his estate. Early interpretive field guides and brochures for the park (e.g., Richards 1974) included plant lists. Although on file at the visitor center, these guides are no longer broadly available. There is no current plant list for Borderland; recent information on the park's plants comes from ongoing forest monitoring efforts. (See Forests, below.)

The area around the Ames Mansion consists of formal gardens that contain a variety of exotic plants, including some invasives. (See DCR 2011c for information on the vegetation of the Ames Mansion landscape.) These gardens are part of the cultural landscape and are addressed as such throughout this section.

In June 2016, MassWildlife assessed the extent of deer browse on portions of Borderland. They described the park's vegetation as "Heavily Impacted" by deer browse and noted that they saw few herbaceous plants preferred by deer (Stainbrook 2016b).

Invasive Species

There have been no formal surveys of Borderland's invasive plants. Preliminary information is presented in Table 13.2.4. Given its farming history, and the introduction of ornamental plants to the landscape during the Ames' ownership, it is likely that many additional invasive plants are present in the park.

Table 13.2.4. Known invasive plants of Borderland State Park.

Species ^a	Status ^b	Source ^c
Black swallowwort	I	1
Japanese barberry	I	2
Oriental bittersweet	I	2
Winged euonymus	I	1, 2
Yellow iris	I	2

- Presented alphabetically, by common name.
- Plants are classified as being either Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
- Information contained in this table was obtained from the following sources:
 - Observed by RMP planner.
 - Reported in DCR 2011c.

Invasive and other non-native species were historically planted in the mansion's landscape. Japanese barberry and oriental bittersweet were introduced into the U.S. by the Arnold Arboretum (DCR 2011c); the institution for which Oakes Ames was supervisor from 1927–1935. Their presence around the mansion is part of that building's cultural history.

Natural Communities

Six natural communities have been identified (Table 13.2.5); others are likely present. Mass DEP has identified three wetland types: Bog; Wooded Swamp-Mixed Trees; and Shallow Marsh, Meadow, or Fen. These wetlands do not correspond directly to natural communities. Historic data indicate the presence of one or more Atlantic White Cedar communities (Pearl et al. 1997); it is unknown which types are present today.

Table 13.2.5. Known natural communities of Borderland State Park.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Cultural Grassland	T	N/A	1
Deep Emergent Marsh	P	S4	2
Mixed Oak Forest	T	S5	3
Red Maple Swamp	P	S5	3
Shrub Swamp	P	S3	2
White Pine-Oak Forest	T	S5	3

- Classified according to Swain and Kearsley (2011).
- E = Estuarine, P = Palustrine, T = Terrestrial.
- The NHESP ranks communities from most rare (S1) to the most common (S5).
- Information contained in this table was obtained from the following sources:
 - Observed by RMP Planner.
 - DEP Wetlands (1:12,000) data layer.
 - CFI data.

Forests

Most of Borderland (1,281.76 acres; 69.55%) is covered in upland forest. There are five CFI plots with complete data; two are located in Oak-Mixed stands, one is located in an Oak-Hardwood stand, one is located in a White/Red Pine stand, and the last is located in a Red Maple Swamp. Both Oak-Mixed plots have black and northern red oaks dominant in the canopy; black birch and red maple are also present. Other canopy species include scarlet oak,

white oak, yellow birch, and white pine. Understory species included low-bush blueberry, checkerberry, and white pine; black huckleberry black birch, scarlet oak, maleberry, sweet pepperbush, ferns, and a bellwort. Stand age ranged from 59 to 80 years and Site Index values ranged from 39 to 43.

Both upland and wetland species were present in the Oak-Hardwood plot's canopy, including: white, black, and northern red oaks; white pine; hickory; black birch; black gum; and sassafras. Understory species were also a mixture of upland and wetland species, and included black huckleberry, black cherry, checkerberry, witch hazel, sweet pepperbush, red maple, and highbush blueberry. The stand age was 80 years, and the Site Index was 60.

Present in the White/Red Pine plot's canopy were white pine, northern red oak, white oak, hickory, and red maple. Understory species were lowbush blueberry, black huckleberry, white pine, and witch hazel. The stand's age was 78, and its Site Index 55. Although classified as a White/Red Pine stand under CFI protocols, this stand is a variant of the White Pine-Oak Forest described by Swain and Kearsley (2011).

Canopy trees in the Red Maple Swamp included red maple, white oak, northern red oak, hemlock, and white pine. The understory included sweet pepperbush, greenbrier, ferns, witch hazel, Sphagnum, and sedges. Stand age was 83 years, and the Site Index was 50.

Wildlife

Early nature trail guides (e.g., Enser 1975) included lists of wildlife species observed in the park. This information is not widely available, nor is it current. Few formal surveys have been conducted in recent years. However, the forest is identified as a birding hotspot by eBird and as of December 2016, 134 species have been recorded (www.ebird.org). The ponds attract migratory and breeding waterfowl, herons, and shorebirds. The uplands provide habitat for migratory and breeding birds associated with interior forests (e.g., ovenbird, veery); fields (e.g., barn swallow, eastern bluebird); thickets (e.g., gray catbird); and suburbia (e.g., mourning dove, chimney swift). Information is lacking for other taxa.

13.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Borderland is presented in Table 13.3.1. Cultural Resources are identified in Table 13.3.2.

Three archaeological resources are listed by the MHC. Because the MHC does not make information on archaeological resources available to the general public, these resources are not included in Table 13.3.2.

Table 13.3.1. Significant events in the history of Borderland State Park.

Year(s)	Events
1970	Ames Family offers to sell to the Commonwealth "approximately 1,000 acres of land in Sharon and Easton...to be used as a state park." Not included are six tracts of land totaling approximately 372 acres. An assessment of this offer identifies the estate's potential use as a state park as "severely crippled" without the "six substantial and necessary tracts of land" (Walker and Richardson 1970).
1971	The Commonwealth acquires approximately 1,300 acres of the estate.
1972	Borderland State Park Advisory Council established; Friends of Borderland State Park formed.
1973	Borderland State Park officially opens to the public.
Late 1970s	Approximately 54 acres along Massapoag Avenue is added to park.
Mid-1980s	Borderland expands north and eastward with acquisition of approximately 200 acres along Mountain Street.
1988	6.6 acres off Deer Meadow Road, Easton is added to the park.
1993	Visitor center constructed.
1993-1994	Further northward expansion of the park, with the acquisition of approximately 200 more acres.
1997	The Borderland Historic District, which includes 1,270 acres of the park, is added to the National Register of Historic Places.
2009-2011	Major interior and exterior renovations to mansion.

Table 13.3.2. Cultural resources of Borderland State Park.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Borderland Historic District (National Register Historic District)	NRDIS	1786–1946	-	H	-	-	EST.H, SHA.C	-
Agricultural fields	LA	-	-	H	-	-	EST.941	1
Stone wall system	ST	-	-	M	-	-	EST.932, SHA.907	2
Electric Wire Fence System	OB	-	-	M	-	-	EST.933, SHA.908	2
Colonel Israel Tisdale Farm	LA				-	-	SHA.17	
Tisdale barn foundation	AR	ca. 1810	-	M	-	-	-	3
Tisdale farmhouse foundation	AR	ca. 1810	-	M	-	-	-	3
Tisdale farm grounds	LA	ca. 1810	-	L	-	-	-	1
Ames Estate	LA							
Ames Mansion	BU	1910–1911	3	H	Y	E, H, S, T, W	EST.112	4
Ames Mansion – Rock garden	LA	1910–1911	1	H	-	-	EST.943	1, 2
Ames Mansion – Swimming pool	ST	1910–1911	4	M	-	-	EST.944	2
Water pipe and valve system	OB	1930	4	L	-	-	EST.937	2
Ames Mansion – Tennis court	ST	1910–1911	3	M	-	-	EST.945	2
Ames shooting lodge	BU	1910–1911	3	H	Y	-	EST.113	4
Shooting range	LA	ca. 1906	-	L	-	-	EST.939	1
Circulation system	LA	-	-	H	-	-	EST.942	1
Root cellar	ST	1910–1911	4	H	-	-	-	2
Currihan farmhouse foundation	AR	Late 19 th c	-	L	-	-	-	3
Currihan barn foundation	AR	Late 19 th c	-	L	-	-	EST.931	3
Currihan corn crib	BU	Late 19 th c	4	H	Y	-	EST.138	4
Maintenance garage ⁱ	BU	1974	3	N/A	Y	E	EST.139	-
Lawrence Newcomb Visitor Center ⁱ	BU	1993	3	N/A	Y	E, H, I, S, T, W	EST.142	-
Briggs Nail Factory	AR	ca. 1831	-	-	-	-	SHA.915	3
Ponds, Dams, and Dikes								
Borderland State Park Dam #1 (MA03277)	ST	ca. 1940	5	M	-	-	-	2
Borderland State Park Dam #2 (MA03178)	ST	ca. 1940	5	M	-	-	-	2
Borderland State Park Dam #3 (MA03180)	ST	ca. 1940	5	M	-	-	-	2
Upper Leach Pond	LA	ca. 1939	-	M	-	-	SHA.911	1
Upper Leach Pond Dam (MA03037)	ST	ca. 1939	5	M	-	-	-	2
Upper Leach Pond Dike #1 (MA03269)	ST	ca. 1939	5	M	-	-	-	2
Upper Leach Pond Dike #2 (MA03270)	ST	ca. 1939	5	M	-	-	-	2
Upper Leach Pond Dike #3 (MA02371)	ST	ca. 1939	5	M	-	-	-	2
Pud's Pond	LA	1906, 1926	-	M	-	-	EST.935, SHA.910	1
Pud's Pond Dam (MA03038)	ST	ca. 1906	5	M	-	-	-	2
Leach (Wilbur) Pond	LA	1825	-	M	-	-	EST.934, SHA 909	1
Leach Pond Dam (MA03036)	ST	1825	5	M	-	-	-	2
Four Day Pond	LA	ca. 1938	-	M	-	-	-	1
Selee (Saten's Sawmill) Dam	ST	ca. 1908	-	L	-	-	EST.938	2
Dam and sluiceway system	ST	1825	-	M	-	-	EST.936	2
Water tower footings	ST	ca. 1906	-	-	-	-	EST.940	2
Smith Farm								
Smith farmhouse	BU	ca. 1880	5	M	Y	E, H, S, T, W	EST.115	5
Smith Farm barn	BU	-	N/A	N/A	-	-	EST.144	5

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Wilbur Farm								
George Wilbur House	BU	ca. 1786	5	M	Y	E, H, S, T, W	EST.114	5
George Wilbur cattle barn ^j	BU	-	6	L	N	-	EST.143	5
Wilbur cemetery	CM	1807	-	M	-	-	EST.803	6
William Dean Cemetery	CM	-	-	H	-	-	EST.814	6

- a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- b. Date of construction provided, when known.
- c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- d. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- f. The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- g. Massachusetts Historical Commission inventory number; does not include Historic Archaeological numbers.
- h. The following guidance is offered for the ongoing maintenance of these cultural resources:
 1. Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).
 2. Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).
 3. Refer to Archaeological Features BMP (DCR n.d.g).
 4. Refer to Historic Building Maintenance BMP (DCR n.d.f).
 5. Under Historic Curatorship Program, refer to current lease.
 6. Refer to Cemeteries and Burial Grounds BMP. (DCR n.d.k).
- i. These non-historic buildings are identified as "non-contributing elements" in the National Register listing for the Borderland Historic District; they are listed both here and in Table 13.5.1.
- j. This barn has been dismantled; current plans call for it to be rebuilt using some of the remaining original materials.

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

MHC archaeological files document over 50 pre-Contact sites within a mile of Borderland, however only two are recorded within the park. Many of these sites are surface "findspots" located by collectors and contain little or no information. The oldest sites date back to the Paleo Indian period (11,000 BP) with the most recent dating back to the Late Woodland Period (1,000 years BP–450 BP). Many sites are multi-component. For example, a stone-tool making workshop site was located during an archaeological survey in advance of work at one of the historic properties at Borderland. The park has a high archaeological potential for pre-Contact sites and any proposed below ground impacts must be reviewed by the DCR Archaeologist. An Archaeological Site Avoidance and Protection Plan must be in place in advance of any work at the site.

Post-Contact Resources

Two historic farmhouse sites are located within Borderland. The Wilbur House (MACRIS # EST.26) is a single family dwelling house built in the 18th century, and currently being renovated through the DCR Curatorship program. The house site contains many associated out-buildings and agricultural features and landscapes. The Drake-Tisdale House Site (MACRIS # SHA.2) is a 19th century single-family dwelling house. As with any historic structure, associated outbuildings, features and landscape remains survive in the archaeological record. Additional background research on the property will assist in identifying any significant historic or archaeological resources or landscapes that could be affected by future impacts.

The National Register of Historic Places Registration Form for the Borderland Historic District indicates a cellar hole on the south side of Mountain Street that is associated with the Briggs Nail Factory (Pearl et al. 1997). This resource was

last documented in 1906, and was not assessed for this RMP.

HISTORIC RESOURCES

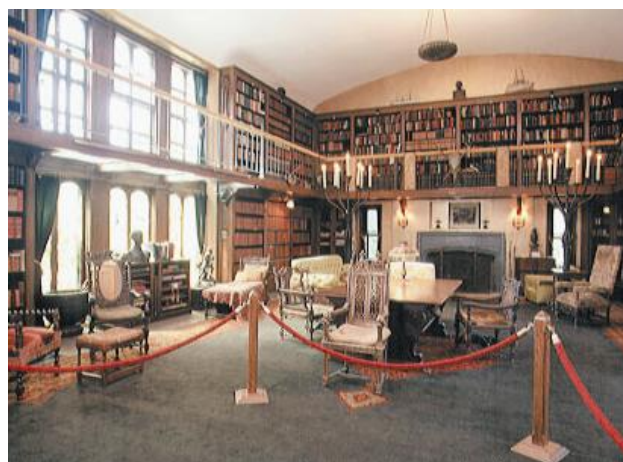
Borderland is significant for its association with two distinct periods of historic identity. The first is its association with agrarian use from the late 18th century to the late 19th century. The area that is now Borderland was heavily modified by different families for their farms. This was an eclectic grouping of farms, with uses ranging from cattle, to crops, to a gentleman's farm. This grouping of different farm lands was bought and consolidated into an estate from the Gilded Era. The Ames family began acquiring farm lands in the early 20th century and transformed them into a lavish estate complete with a mansion, athletic facilities, gardens, and outbuildings; all connected within an impressive landscape design. This estate was bought and preserved by the Commonwealth, and is now listed on the National Register of Historic Places.

Historic Landscapes

Colonel Israel Tisdale Farm. Captain Ebenezer Tisdale first settled his family's farm in the mid-18th century. Ebenezer was a Revolutionary War soldier who settled upon land along Mountain Street. This land passed down through his descendants, with his grandson the next Tisdale to develop the land. In the early 19th century, Colonel Israel Tisdale razed his grandfather's house and built a new house in this historic landscape. Various outbuildings were constructed for agrarian uses over the years, and the land remained used primarily for agriculture until purchased by the Ames Family. In 1906, Blanche Ames retrofitted the Federal Farmhouse into the Colonial Revival style. The Ames family lived in this house until their mansion was ready to inhabit. Colonel Israel Tisdale's Farmhouse was destroyed by fire in 1984. All that remain of the farm are the foundations of the house and barn, and the farm's grounds.

Ames Estate. The Ames family made much of their fortune in manufacturing. They developed a shovel that was widely used during the building of transcontinental railway, and they were a major supplier of goods to Union Soldiers during the Civil War. They originally headquartered production of their goods in Bridgewater, and then built a large factory in the town of Easton. In 1906 the family

began to purchase land in the area that is now Borderland. After acquiring parcels of farm land in the towns of Easton and Sharon, they began developing their estate in 1910. The first parcel they acquired was the Currivan Farm, and it was on this land they built their mansion and developed the landscape. The estate included the mansion, rock garden, a swimming pool, tennis courts, shooting lodge, and other outbuildings and structures. The mansion is the center piece of the estate and was designed by Blanche Ames. She chose a gothic revival style for the design of the building, and every room faced northwest to face the morning sun. Building materials, including stone and asbestos reinforced plaster, were selected because of the Ames' fear of a house fire. The family lived on the estate until the late 1960's. The estate retains much of its original buildings and design. This high level of integrity was a contributing factor to the Estate's National Register of Historic Places listing.



The Ames Mansion's library, shown here, is open to the public during mansion tours. (See Appendix K for photo information.)



The Ames shooting lodge is located on the western shore of Leach Pond. (See Appendix K for photo information.)

Ponds, Dams, and Dikes. Borderland contains several artificial ponds and a variety of water control structures. Some were developed for early industrial use in the 19th century, but most were installed by the Ames Family to provide for their recreational activity, sense of aesthetics, and scientific research. These features retain a high level of integrity, but are in various states of disrepair.

The park's dams, dikes, and spillways are not just historic resources, they are also active water control structures. Inspections of these dams in the mid to late 2000s identified deficiencies, and offered over 100 suggestions for maintenance and improved safety. Although each dam and dike had its own set of safety issues, common problems included a general lack of Operations and Maintenance Plans, tree growth due to a lack of vegetation maintenance, areas of erosion caused by visitors walking to the water's edge, and seepage through the dam or dike. Failure to address deficiencies could result in the loss of ponds and the Ames original vision for the landscape. Readers interested in management recommendations specific to each dam or dike are directed to the inspection/evaluation reports listed in Table 13.8.2.



Upstream face of Pud's Pond Dam. This dam and associated dikes are in Poor condition and have over 30 identified deficiencies (Weston & Sampson 2008a). (See Appendix K for photo information.)

Smith Farm. Smith farm was developed in the late 19th century by Doctor Asabiel Smith, a “clairvoyant healer” from the town of Easton. Dr. Smith built a farmhouse with an attached barn and two outbuildings. All that remains today from the original development is the farmhouse, which is currently under lease through the Historic Curatorship Program. It is the curator's intent to repurpose the farm into a “non-profit education and

arts wellness center.” Information on the proposed repurposing may be found at <http://www.smithfarmheals.org>. Even though the property has lost three historic buildings, it still retains much of its historic integrity due to the surrounding landscape. The presence of the house, pond, and managed agricultural fields are enough to identify the historic use of the property.



The Smith farmhouse, September 2015. (See Appendix K for photo information.)

Wilbur Farm. The Wilbur farm was established in 1780 by George Wilbur who built a farmhouse, barn, and outbuilding. This farm was used to raise cattle and continued in agrarian use for decades. It was acquired by the Ames Family in 1949, and its Georgian style farmhouse is the oldest building in Borderland State Park. This farmhouse and cemetery are the only remaining objects from the original development. The house and surrounding land are currently under lease through the Historic Curatorship Program. The curator has demolished and re-built the kitchen ell, and is currently in the process of rehabilitating the original farmhouse. The barn was disassembled before the curators took control of the property, and they have plans to re-use some of the salvaged timbers to re-build the barn. The curators have documented the demolition process and provide updates of their progress restoring the house on their web site (<http://www.thewilburfarmhouse.com/>). Similar to the Smith Farm, the Wilbur Farmhouse retains its historic integrity with the existence of the original farmhouse, cemetery, and agricultural context.

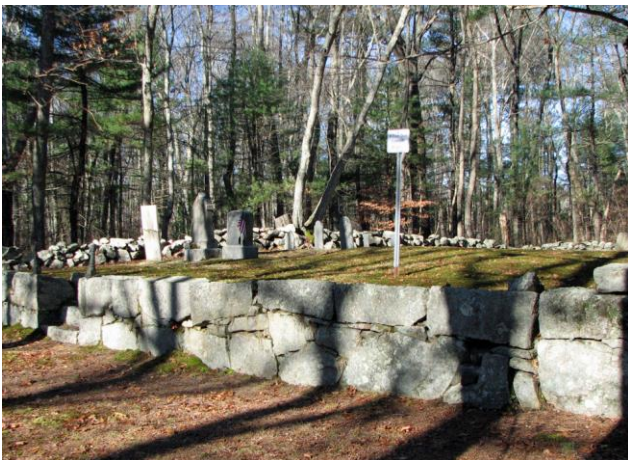
A small family cemetery is located south of the farmhouse, off Massapoag Avenue. It is located entirely within the park on state-owned land; the

Town of Easton identifies this cemetery as municipally owned (Town of Easton 2008).



The Wilbur farmhouse; September 2015. (See Appendix K for photo information.)

William Dean Cemetery. This cemetery is located opposite 144 Rockland Street, Easton, along the park's southern boundary. It is a walled, elevated burial ground approximately 40 feet by 50 feet in size. The elevated graves may be due to the proximity of Poquanticut Brook, which has a 100 year flood zone that extends into the cemetery. The site was first developed as a burial ground in the early 19th century, and has approximately 14 graves that date from 1815–1903. A metal sign and post erected by the Town of Easton identifies the cemetery's name. This burial ground is well maintained. Despite being located entirely within the park on state-owned land, the Town of Easton identifies this cemetery as municipally owned (Town of Easton 2008).



The William Dean Cemetery; an elevated burial ground along Poquanticut Brook. (See Appendix K for photo information.)

Buildings

All of the park's historic buildings are associated with landscapes described above.

Structures

The National Register of Historic Places Registration Form for the Borderland Historic District lists water tower footings in the Sharon portion of the park, just west of Bay Road (Pearl et al. 1997). No additional information is provided in the form and these footings were not observed during the preparation of this RMP. Their condition and integrity were not assessed.

Objects

All of Borderland's historic objects are associated with landscapes described above.

13.4. RECREATION RESOURCES

Recreation at Borderland is primarily trails based. There are few recreation resources that are not associated with the forest's trails. The following recreation activities take place in Borderland:

- Bicycling, mountain
- Disc golf
- Dog walking, off-leash area
- Dog walking, on leash
- Fishing
- Geocaching (30 caches as of December 2016)
- Hiking
- Horseback riding
- Nature study/Photography
- Orienteering
- Picnicking
- Running/Jogging
- Skiing, cross-country
- Sledding/tubing
- Tennis

Visitors obtain information on the park's resources, recreation opportunities, and regulations at the Lawrence Newcomb Visitor Center. Interpretive displays, public bathrooms, and other visitor amenities are available at this facility.

Picnic tables are located south of the visitor center; their location provides a view of the Ames Mansion and grounds. A few additional tables and a grill are located opposite the Ames Mansion's garage entrance.



View of Ames Mansion from Borderland's picnic area. (See Appendix K for photo information.)

An 18-hole disc golf course (Borderland Disc Golf) is located in the park. It is open to the public without charge. The course extends from the visitor center eastward to Leach Pond, and southward to just beyond the Wilbur House. The course includes open lawns and fields, as well as forested areas. It was established in 2002 as a 9-hole course and expanded over time. The Friends of Disc Golf at Borderland, a non-profit organization, manages the course and organizes two large annual events; the Spring Fling and Fall Classic. This is the only disc golf course in the Blue Hills Complex.



Disc golfers at Borderland; the course draws recreationists from throughout the northeast for tournaments and regular play. (See Appendix K for photo information.)

Dog walking, both on and off-leash is a common recreation activity. Two fields east of Leach Pond have traditionally been used as off-leash dog areas. In addition to recreational dog walking, there is also a high level of commercial dog walking.

Due to its strong visual character, Borderland is used as a wedding venue, and for video and still photography. Park buildings have appeared in major motion pictures (e.g., *Shutter Island*, *Ghostbusters*) and its grounds are often used as a backdrop for engagement, maternity, and family photos. A quick Internet search identified over 40 commercial photographers using Borderland as a backdrop for these photos. These commercial activities have a recreation component.

13.5. INFRASTRUCTURE

Property Boundary

Borderland is situated amidst residential development. It occurs within an area delimited by Massapoag Avenue to the west; Morse Street to the north; Mountain Street, Bay Road, and Allen Street to the east; and Rockland Street to the south. Approximately 2 acres of park are located west of Massapoag Avenue in Sharon, and 17.1 acres are located south of Rockland Street in Easton. Undeveloped municipal lands abut portions of its southern and southeastern borders. Undeveloped private lands abut its northern and northeastern border. Encroachment is not a major issue, despite the park's proximity to roads and residences.

Two easements relevant to the operation of Borderland were identified during the preparation of this RMP. In 1966 Oliver and Amyas Ames granted a perpetual easement on approximately 9.4 acres in Easton to the Montaup Electric Company, its successors, and assigns. (Bristol County Registry of Deeds Book 01484, Page 237) This easement allows for a broad variety of "fixtures, equipment and appurtenances" as "necessary for the transmission of electricity for light, heat, power, telephone, telegraph, or any other purpose." The deed for the Sullivan parcel, a 6.62 acre parcel located on Deer Meadow in Easton, includes a 4,047 square foot perpetual drainage easement. (Bristol County Registry of Deeds Book 4001, Page 226).

Buildings and Structures

There are four non-historic buildings; an observation blind; a variety of structures associated with the trails system; and livestock pens, sheds, and coops (Table 13.5.1).

The Lawrence Newcomb Visitor Center is an L-shaped, single story building located on the east side of the main parking lot. The center is named for a botanist who authored the standard field guide for identifying wildflowers in the Northeast. (See Chapter 154 of the Acts of 1995.) He was one of the “three incorporators of the Friends of Borderland,” served on the Borderland State Park Advisory Council, and was instrumental in the creation of a park visitor center. The building includes the park’s only public bathrooms, a multi-function room used for meetings and presentations, a water fountain, and a soft drink machine. All public spaces are at ground level and are accessible. Also in the building are a small office for staff, and an employee kitchenette. The office space is insufficient for current staffing

needs. Most of the buildings mechanical systems are housed in a half basement.



The Lawrence Newcomb Visitor Center welcomes guests to Borderland. (See Appendix K for photo information.)

Table 13.5.1. Non-historic buildings and structures of Borderland State Park.

Location and Infrastructure	Date ^a	Condition ^b	In Use ^c	Utilities ^d
Lawrence Newcomb Visitor Center	1993	3	Y	E, I, H, S, T, W
Leach Pond Area – Pond Walk				
Observation blind	ca. 2002	3	Y	-
Maintenance Area				
Maintenance garage	1974	3	Y	E
Tool shed	-	3	Y	-
Disc golf shed	-	3	Y	-
Wilbur Farm				
Livestock pens, coops, and sheds ^e	-	-	-	-
Trails System^f				
Boardwalks (12)	-	2–4	-	-
Bog bridge (1)	-	2	-	-
Bridges (10)	-	2–4	-	-

a. Date of construction provided, when known.

b. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.

c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.

d. The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.

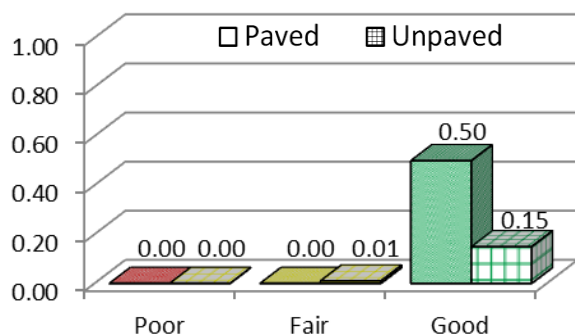
e. These structures are located on DCR property but are not owned by the DCR.

f. Based on 2007 trails assessment; the most recent year for which data are available.

Roads

Historic paths and roads are common at Borderland. However, they primarily function as trail segments and not as roads. Only 0.66 miles of public and administrative roads are present. The entrance road, from Massapoag Avenue to the visitor center, is the park's only public road, and the dirt road from Massapoag Avenue to the Ames Mansion is the only administrative road. The length and condition of these roads are identified in Figure 13.5.1.

Figure 13.5.1. Condition and length (in miles) of roads at Borderland State Park.



Parking

Borderland has one main lot, and five supplemental lots. (Table 13.5.2.) The main lot is located at the visitor center; two pay stations are associated with this lot. The park's original parking lot, located near the main entrance, provides parking for season pass holders. Both lots are open during daylight hours and locked overnight. Hours of operation change with day length. Parking for events at the Ames Mansion is located adjacent to the building (i.e., HP spaces) or in a field near the mansion. A small gravel lot provides parking for visitors attending functions at the Smith Farm. A small parking area is located on the east side of the park, at the intersection of Bay and Allen roads. During special events, vehicles may be parked on the lawn between the visitor center and the mansion. Visitors to Dean Cemetery may park off the shoulder of Rockland Street. Off-road parking also takes place along portions of the eastern shoulder of Massapoag Avenue; use of this area is not encouraged.

Table 13.5.2. Number of public parking spaces, by location and type, at Borderland State Park.

Location	HP	Restricted	Other	Total
Lawrence Newcomb Visitor Center	10	0	240	250
Season Pass parking lot	0	0	33	33
Ames Mansion				
Garage entrance	2	0	0	2
Wedding parking – Field ^{b, c}	0	120	0	120
Smith Farm^{c, d}	0	7	0	7
Bay Road at Allen Road	0	0	10	10
Total	12	127	283	422

a. Based on pavement markings.

b. Based on 9 by 18 foot spaces with 24-foot wide aisles. The actual number of cars parked in this field exceeds the capacity calculated.

c. Restricted to use by visitors attending special events at facility.

d. Based on the number of 9-foot-wide spaces.



Main parking lot at Borderland; a pay station is visible on the right side of this photo. (See Appendix K for photo information.)

Employee parking is located adjacent to the visitor center and the maintenance garage. Resident parking is associated with the Smith and Wilbur farm houses.

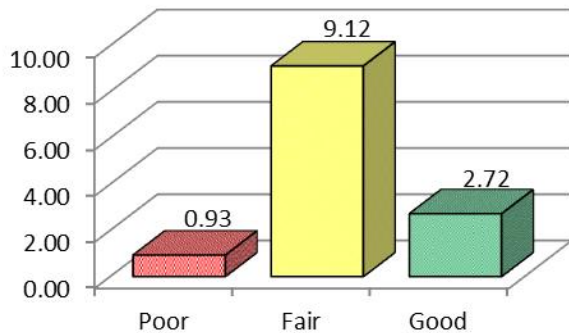
Following the implementation of a \$5 parking fee in January, 2015, some visitors began parking in adjacent residential neighborhoods and crossing private property to access the park. In June, 2015 the Easton Select Board referred the issue to the Town's Traffic Safety Committee.

Trails

Borderland's trail system includes cart paths and farm roads that pre-date the Ames Estate; fire roads and carriage paths created by the Ames family; and

single tracks created specifically for hiking and mountain biking. There are 12.77 miles of official trails (Figure 13.5.2); most (71.42%) are classified as being in Fair condition. An additional 1.13 miles of unauthorized user-created trails have also been documented.

Figure 13.5.2. Condition and length (in miles) of official trails at Borderland State Park.



The Pond Walk is an approximately 2.7 mile long loop trail that circles Leach Pond. It is comprised of old roads and cart paths. Although considered an easy walk, it is not ADA accessible. A 1.5 mile long portion of the Pond Walk has been designated a DCR Healthy Heart Trail.

A long-distance trail, the Bay Circuit Trail and Greenway, passes through the park. It extends 4.76 miles through the park along existing trails, including sections of the Pond Walk.

All trails are open to mountain bike use. The park provides both easy and hard riding experiences; the former along single track trails to the north of the ponds and the latter along carriage roads from the ponds south. Trails for intermediate skilled riders are uncommon (NEMBA 2015a).

A well-marked series of paths direct disc golfers from hole to hole. These trails have not been inventoried or mapped, and are not represented in the values in Table 13.5.4.

Kiosks and Signs

There are four standard wooden DCR kiosks. Three are located adjacent to the visitor center and the fourth is located adjacent to the parking lot at Smith Farm. A non-standard kiosk, made of recycled plastic, is also located at Smith Farm.

The park's main identification sign is located at the entrance to the main parking lot on Massapoag Avenue. A second identification sign is located on the east side of the park, at the intersection of Bay and Allen roads, in Easton. Two wooden signs are located at the visitor center. The first identifies it as the Lawrence Newcomb Visitor Center and the second acknowledges that the Land and Water Conservation Fund was used to the acquire land. Internal regulatory signs are present at multiple locations. Course signs are associated with each disc golf tee box. Bay Circuit Trail signs are located along that trail.

Iron Ranger

There are two iron rangers; one is located near the visitor center and the other is located at Smith Farm.

Memorials and Markers

Several memorials and markers were identified during the preparation of this RMP. However, it is likely that additional markers are present but have gone undocumented. Because of this, the following list should be considered preliminary.

- Metal plaque attached to a rock near the entrance to the Ames Mansion. This plaque bears the following inscription: *Borderland Historic District. Estate of Blanche and Oakes Ames has been placed on the National Register of Historic Places by the United States Department of the Interior, 1997.*
- Engraved stone, located near season pass parking lot. This marker bears the following inscription: *Borderland: The former estate of two remarkable people, Oakes and Blanche Ames. Within this park are the sites of several eighteenth and Nineteenth Century industries, a bog iron operation, a reservoir for Easton furnace industries, early Easton homes, and a stone mansion. Easton Historical Commission, August 21, 1983.*
- Wooden plaque on Leach Pond observation blind, bearing the following inscription: *Tenner 6/1/87 – 6/30/02.*
- Aluminum marker identifying the cemetery on Rockland Street as *William Dean Cemetery, 1815*; erected by the Town of Easton and bearing the town's seal.

At least seven memorial benches bearing metal plaques or engravings were observed during the preparation of this RMP. More are likely present.



This engraved stone marker placed by the Easton Historical Commission highlights the history of Borderland. (See Appendix K for photo information.)

13.6. INTERPRETATION

Borderland has a dedicated visitor center and strong interpretive programming offered by the park's Visitor Services Supervisor and the Friends of Borderland (i.e., the Friends). Programs, interpretive panels, and other interpretive materials focus on cultural resources (e.g., the Ames family), natural resources (e.g., the park's geology), or recreation. The Friends' programming also focuses on the arts

In 2015, approximately 3,600 visitors participated in DCR programs and an additional 2,022 participated in programming offered by the Friends. The following programs were offered by DCR:

- Architecture tour: A story in stone
- Garden tour: Secret treasures of the land
- Mansion tours. This program series includes the following six topics: Building a home; The Ameses and women's rights; Of governors and generals; A portrait of an artist; Partners in love and work; and Kids mansion tour
- Explore nature. This program series includes the following four topics: Ponding; Geology hike; Stonewall secrets; and Animal hide and seek
- Off the beaten path hike
- The long hike
- Ames boulder hike
- The pond walk

- Autumn hike
- Too much turkey hike
- Full moon hike
- Dr. Seuss story walk
- Fishing at borderland
- Kiddleidoscope



A Visitor Services Supervisor introduces visitors to Borderland before leading a winter hike. (See Appendix K for photo information.)

The Friends offered the following programs and special events:

- Ames Mansion tours
- Old fashioned baseball game
- Holiday hand bell choir
- Shakespeare in the park
- A Christmas Carol, a dramatic reading
- Fishing Fest
- New England Society of Botanical Artists demonstration

In most years the Friends sponsor the Blanche Ames National Juried Art Show and an associated opening reception.

There are several permanent interpretive panels. Most are located at visitor center, the Ames Mansion, and throughout the mansion's grounds. These panels include:

- Welcome to Borderland State Park
- Changing landscapes, changing families
- Welcome to the house at Borderland
- The swimming pool at Borderland
- Upper Leach Pond (laminated)

In addition, the following five interpretive signs are located just outside the Ames Mansion as part of the “Ames Mansion Centennial Path:”

- Creating Borderland
- Passing of playfellows
- Building a home
- A team effort
- Struggle for equality

A single panel is located in a field off Mountain Street in Sharon, it reads:

- Changing landscapes, changing families

13.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

Borderland is managed by MassParks employees; there are two year-round and five seasonal personnel. (Table 13.7.1) A third year-round position has been vacant since 2014.

Table 13.7.1. MassParks personnel assigned to Borderland State Park.

Job Title	Number of Positions 2016
<i>Year-round Personnel</i>	
Forest and Park Supervisor III	1
Forest and Park Supervisor II ^a	0
Forest and Park Supervisor I	1
<i>Seasonal Personnel</i>	
Laborer II (Short-term)	1
Ranger I (Long-term)	1
Ranger I (Short-term)	1
Summer Worker (Short-term)	1
Visitor Services Supervisor	1

a. Vacant since 2014.

Two Forest Health Program employees are also headquartered at Borderland. Personnel include a Forestry Assistant and an Insect Pest Specialist; they provide support to all properties in the Complex.

Partnerships and Volunteers

A formal Borderland State Park Advisory Council was established in 1972 to provide stakeholder input on the creation and operation of the park. Membership includes representatives from the

Towns of Sharon, Easton, Stoughton, and Mansfield, the Forest and Park Supervisor, and a representative of the Friends of Borderland. The advisory council meets quarterly and advocates for increased staffing and operating funds for the park.

Three partner organizations have a major, ongoing presence: the Friends of Borderland; the Friends of Borderland Disc Golf; and the New England Mountain Bike Association (i.e., NEMBA). None have current formal agreements with the DCR. The Friends are a non-profit volunteer organization that assists the DCR “in preserving and interpreting the natural, historical, and cultural resources” of Borderland. Established in 1972, before Borderland was officially opened to the public, the Friends purchase flowers, bird seed, and mutt mitts, sponsor events, and raise funds on an annual basis to restore items in order to “preserve the history for future generations” (Friends of Borderland 2015). They operate a gift shop in the Ames Mansion and a “portable gift shop” at the visitor center. Gift shop hours are set around mansion tours and special events. The Friends of Borderland Disc Golf were established to advocate for, and then operate, the Borderland Disc Golf Course. They constructed and maintain the course, and run events. NEMBA is a recreational trails advocacy organization active throughout New England. Its mission is “to promote the best that mountain biking has to offer, steward the trail system where we recreate and preserve open space” (NEMBA 2015b). At Borderland, NEMBA has built bridges, performed trails work, and created limited, new trails (NEMBA 2015a). Perhaps, most importantly, they promote among their membership the ethos that the construction and use of unauthorized trails threaten natural resources, cultural resources, and ongoing recreational access.

Safety

Easton and Sharon fire departments provide fire response and emergency services. Additional support is provided by Fire Control Districts 3 and 4, which are based at Freetown-Fall River and Myles Standish state forests, respectively. Municipal police departments, the Massachusetts State Police (Station H-3, Foxborough and Station D-4, Middleborough), and the Massachusetts Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

Financial contributions placed into the park's iron rangers are added to the Conservation Trust Fund and used at Borderland. The fund has a balance of approximately \$28,760 at the time of this writing.

Retained Revenue

The park generates revenue from parking fees. This money counts toward DCR's retained revenue cap.

Other Revenues

In 2015 the park received \$10,000 from the producers of Ghost Busters, which filmed in the mansion's library. This money is included in the Trust Fund balance indicated above. These funds will be used to renovate bathrooms in the visitor center. The Friends raise money through membership fees, donations, special events, and gift shop sales. Funds are used to purchase supplies and services that are donated to the park. There is no direct transfer of revenues.

13.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 13.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of Borderland. Legal agreements unique to the park are listed in Table 13.8.1.

Table 13.8.1. Key legal agreements for Borderland State Park.

Party and Subject of Agreement	Type^a	Expiration Date^b
Charles Wilbur. Permit Agreement to operate, manage, and maintain an agricultural concession located at Borderland State Park.	P	2012
The Friends of Wilbur Farmhouse, Inc. Ground Lease; DCR Historic Curatorship Program. <i>Extension of 5 years available at tenant's request.</i>	L	2047
Smith Farm at Borderland, Inc. Ground Lease; DCR Historic Curatorship Program. <i>Extensions of 10 and 15 years available at tenant's request.</i>	L	2052

a. Agreement types include: A = Memorandum of Agreement; C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

b. Year that agreement expires.

Because the acquisition of Borderland was partially funded by the Land and Water Conservation Fund, use and management of this park are subject to that program's requirements (NPS 2008). Copies of Land and Water Conservation Fund inspection reports were not located during the preparation of this RMP.

Key planning documents are identified in Table 13.8.2.

Table 13.8.2. Key management and guidance documents for Borderland State Park.

Author and Document	Year
Gannett Fleming, Inc. Environmental Audit Report: Borderland State Park, North Easton, Massachusetts.	1999 ^b
Bargmann Hendrie + Archetype, Inc., et al. Building conditions assessment with maintenance recommendations.	2004
Fairbanks Engineering Corporation Inspection/Evaluation Report: Upper Leach Pond Dam	2006 ^a
Fairbanks Engineering Corporation Inspection/Evaluation Report: Borderland Dam #1	2006 ^b
Fairbanks Engineering Corporation Inspection/Evaluation Report: Leach Pond Dam	2006 ^c
Fairbanks Engineering Corporation Inspection/Evaluation Report: Upper Leach Pond Dike #1	2006 ^d
Fairbanks Engineering Corporation Inspection/Evaluation Report: Upper Leach Pond Dike #2	2006 ^e
Fairbanks Engineering Corporation Inspection/Evaluation Report: Upper Leach Pond Dike #3	2006 ^f
Weston & Sampson Follow-up Inspection; Pud's Pond Dam-MA03038, Borderland State Park, Sharon, Massachusetts	2008 ^a
Weston & Sampson Follow-up Inspection; Borderland State Park Dam #2-MA03178, Borderland State Park, Sharon, Massachusetts	2008 ^b
Weston & Sampson Follow-up Inspection; Borderland State Park Dam #3-MA03180, Borderland State Park, Sharon, Massachusetts	2008 ^c
Department of Conservation and Recreation Ames Mansion landscape rehabilitation plan: Borderland State Park; Easton, Massachusetts	2011 ^b

Annual Maintenance

Ongoing management practices typically follow a regular schedule. Common activities, and the desired frequency with which they occur, are identified in Table 13.8.3.

Table 13.8.3. Annual cycle of management activities at Borderland State Park.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Cleaning - Visitor center	D2	D2	D2	D2
Cleaning - Walkways	AN	AN	AN	N/A
Litter removal - Recreation areas	D	D	D	N/A
Litter removal - Trails	AN	AN	AN	AN
Maintenance - Picnic sites, fences, etc.	AN	AN	AN	N/A
Mowing and trimming	AN	E2	AN	N/A
Mulching and fertilizing	N/A	A	N/A	N/A
Pruning - Trees and shrubs	AN	AN	AN	N/A
Trash - Empty - Barrels	D	D	D	N/A
Trash-Empty-Bathrooms	D	D	D	AN
Weed - Flower beds	AN	AN	AN	N/A

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; and N/A = Not applicable.

Natural Resources

Water Resources

There are no water management activities; pond water levels are not actively managed.

Rare Species

There are no rare species monitoring or management activities.

Invasive Species

Park personnel try to limit the spread of Louise's swallowwort in a field between Pud's Pond and Mountain Street, Sharon, by mowing the field twice annually in order to prevent seeds from forming.

Vegetation

Field staff mows the lawns and fields associated with the visitor center, Ames Mansion, and maintenance garage. Historic curators are responsible for maintaining vegetation at the Smith and Wilbur farms in accordance with the terms of their respective Ground Leases. In the past, a five-year Permit Agreement for an "agricultural concession" on 35 acres of hay lands was awarded following a competitive bidding process. Under this permit, hay was cut in the late summer and fall and rye was planted as a winter cover crop. This activity

helped maintain the historic landscape and land use practices. The most recent Permit Agreement expired in 2013; none has been awarded since. The previous concessionaire's son continues to mow and plant the fields. Borderland Disc Golf maintains vegetation along their course. Because the hayfields and disc golf course are located in Priority Habitat, vegetation management in these areas is subject to review under MESA.



Active agriculture is necessary to maintain Borderland's historic landscape. The permit to hay Borderland's fields expired in 2013, leaving the future of its agricultural landscape in doubt. (See Appendix K for photo information.)

Volunteers work in the park every day, from 1:00–4:00 P.M. They perform landscape and garden maintenance, remove downed trees from trails, and remove tree branches from the edges of fields associated with Smith Farm.

There are six CFI plots; they were last monitored in 2010.

MassWildlife personnel surveyed deer browse near the visitor center, east of the Ames Mansion, and along Quarry Loop Trail in 2016 (Stainbrook 2016b). Forest vegetation was found to be “Heavily Impacted.” Based on this assessment, MassWildlife has recommended regulated hunting to decrease deer densities to 6 to 18 deer/mi² of forest, in order to decrease impacts to vegetation (French and Conlee 2016).

Wildlife

There is no stocking of fish or game species. DCR's Parks and Recreation rules (302 CMR 12.11(3)) prohibit hunting and trapping at Borderland. Fishing is allowed.

In 2015, a multi-year Blanding's turtle conservation and restoration project began. The goal of the project is to capture female turtles, locate and monitor their nests, temporarily take hatchlings into captivity to “head start” their growth, and then release these turtles back at Borderland (Schuler et al. 2016). No nests were located during the project's first year.

Volunteers construct, install, and maintain wood duck boxes in the park's wetlands. This takes place during the winter, when snow cover prohibits other outdoor volunteer activities.

Cultural Resources

The Smith and Wilbur farm houses and associated fields are under historic curatorship. These properties are managed in accordance with the terms of their respective Ground Leases.

The rehabilitation plan for the Ames Mansion landscape includes specific recommendations for entrance foundation plantings, the tall evergreen hedge, rock garden, and path to swimming pool (DCR 2011b). Plantings and ongoing landscape maintenance are detailed in this rehabilitation plan. Guidance is offered on removing some invasive plants while controlling the spread of historically important specimens. This plan is being implemented as time and resources permit.



Maintenance of this rock garden with formal plantings is addressed in a rehabilitation plan for the Ames Mansion's landscape. (See Appendix K for photo information.)

In 2012, approximately \$50,000 worth of *Arbor vitae* was planted as part of implementing the landscape rehabilitation plan. These shrubs were heavily browsed by deer that winter. Fencing was constructed around the plants to prevent additional

browsing. However, the fencing was knocked down, and browsing resumed.

The DCR is responsible for maintaining the historic dams and dikes, and their appurtenant structures. Although inspections are being conducted, there is no active management.

Recreation Resources

Borderland Disc Golf maintains the tees, tee boxes, baskets, and signs associated with the course. Because the disc golf course is located entirely within Priority Habitat, course maintenance activities are subject to review under MESA.

In accordance with Park and Recreation Rules, only cartop boats may be used in the park's ponds (302 CMR 12.07(11)).

Infrastructure

Boundary

The Regional Forester maintains boundary markings.

Buildings and Structures

Due to its size and age, the Ames Mansion requires ongoing monitoring and maintenance. The outside of the mansion is walked every two days, on a year-round basis, to look for vandalism and identify developing problems. The mansion is cleaned every two weeks during the active season, and every two months during the winter. During these cleanings, every room is opened and inspected to identify developing problems. This cleaning and monitoring is performed by DCR employees and volunteers. Park personnel are always on site during contractor repairs to the mansion. This constant monitoring takes them away from other park activities.

Asbestos reinforced plaster in the mansion's interior is an ongoing challenge. When cracks develop, asbestos fibers are exposed and may pose a health risk. The Forest and Park Supervisor, who is certified to handle up to three square feet of exposed asbestos, inspects the damage and contacts DCR's Office of Cultural Resources (OCR). The OCR then arranges for repairs to be performed by a Department of Labor Standards certified contractor. The asbestos is removed, and the plaster repaired, as time and resources permit. A caretaker's apartment

in the mansion has been fully abated of asbestos; it remains unused.

DCR staff and volunteers clean and maintain the visitor center on an as needed basis. This includes sweeping, vacuuming, washing windows, cleaning and restocking bathrooms, and removing snow from sidewalks and the building's roof.

Recent repairs of the maintenance garage were performed by Park Support Operations. This included reroofing and painting the building.

Maintenance and repair of the Smith and Wilbur farm houses are performed in accordance with the terms of their respective Ground Leases.

Roads

There are no ongoing road maintenance activities. Park staff members fill potholes in dirt roads on an as needed basis. Potholes in the main entrance road go unfilled due to a lack of hot patch. The Forest and Park Supervisor from F. Gilbert Hills State Forest provides assistance with road grading on an as needed basis.

The Forest and Park Supervisor of Borderland plows roads and some parking lots in accordance with the following prioritization:

1. Bay Road, from Massapoag Avenue to the maintenance garage and Ames Mansion.
2. Park entrance, main parking lot, and visitor center.
3. Dirt road from visitor center to Ames Mansion, and the segment of "Borderland" Road from the Ames Mansion to Bay Road.

In heavy snow, the segment of Borderland Road between the Ames Mansion and Bay Road cannot be cleared with the available pickup truck and plow. The park's truck is equipped with a small, slide-in sander that is used to treat the park entrance and parking lot. A sander from the Blue Hills District provides assistance on an as needed, and as available, basis. Employees shovel snow at the visitor center and Ames Mansion on an as needed basis.

Parking Areas

During periods of low to moderate visitation, visitors enter the park without guidance and locate their own parking spaces. At these times, DCR

Rangers are available to enforce parking fees and park regulations, and to aid visitors. However, during peak use, such as summer weekends, their time is entirely consumed with emergency response and directing visitors to available parking.

See Roads (above) for information on snow removal and pothole repair.

Trails

Trails are maintained by a variety of organizations. The Friends donate supplies and materials for trail maintenance, but do not provide labor. NEMBA volunteers maintain trails north of the ponds, and Bob's Trail along the park's eastern side. Each year the Forest and Park Supervisor submits requests for Americorps crews to perform trail maintenance. These crews have been made available for nearly all years requested. Trails have been mapped by DCR and are included in NHESP (2015a). This document must be consulted, and guidance followed, prior to performing trails maintenance in order to comply with MESA.

The Bay Circuit Trail and Greenway, in its entirety, is managed by the Bay Circuit Alliance. (See <http://www.baycircuit.org> for information on this organization.) Portions of the trail within Borderland are managed by a Bay Circuit group based in Sharon, Appalachian Mountain Club staff and volunteers, and other volunteers. These activities are subject to MESA, as implemented through NHESP (2015a).

The Friends of Borderland Disc Golf maintain trails between holes on the disc golf course. Because these trails were not mapped by DCR, they were not included in the NHESP's statewide review of trail maintenance activities on DCR parks (NHESP 2015a). Because of this, all trail maintenance activities associated with the disc golf course are subject to review under MESA.

Kiosks and Signs

The disc golf course kiosk adjacent to the main parking lot is managed by Borderland Disc Golf. Other kiosks are managed by staff, with the assistance of the Friends.

13.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Borderland State Park. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 13.9.1) for consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 13.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

- No sections of Borderland have been designated Zone 1.

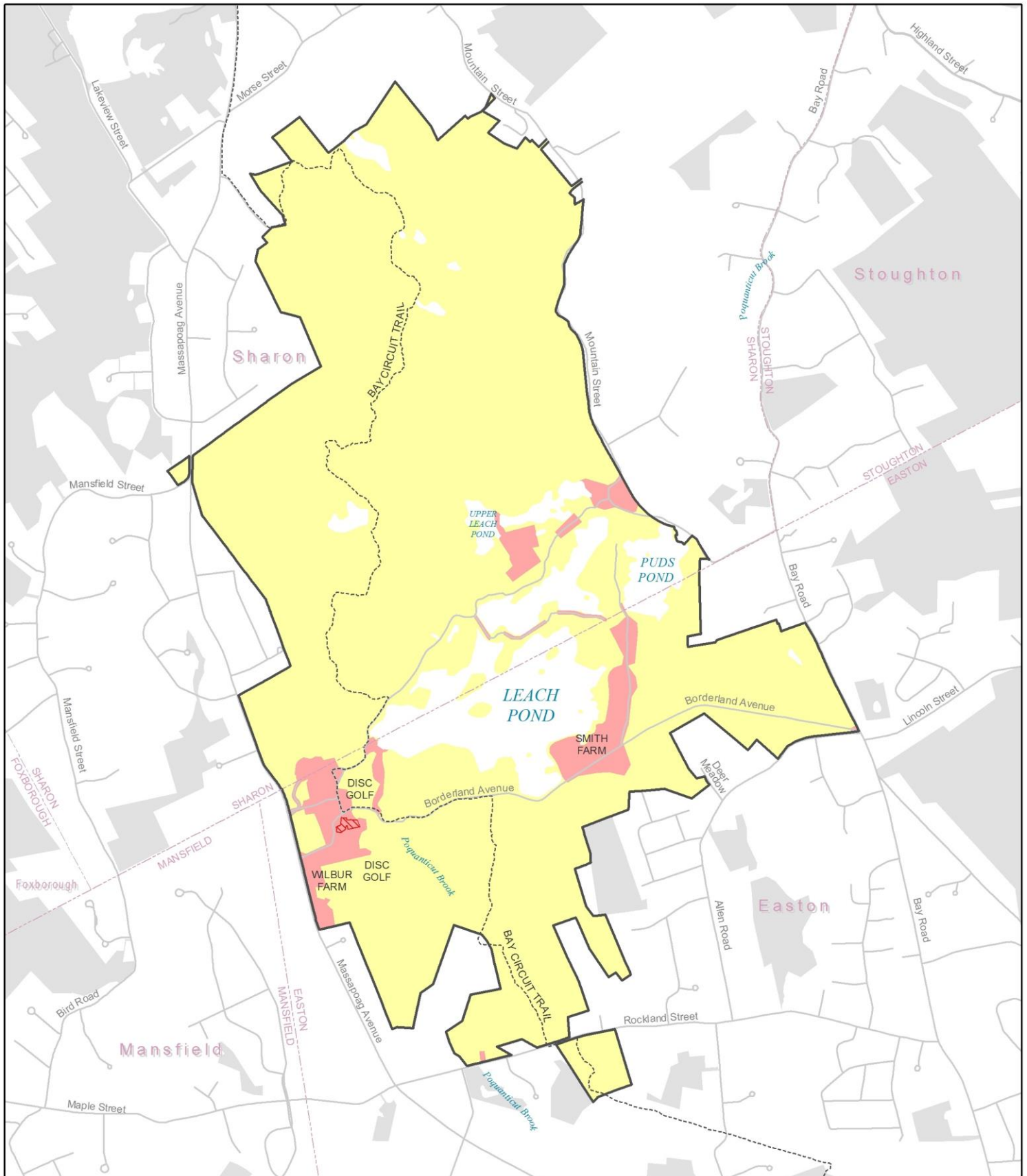
Zone 2

- All areas not specifically designated as Zone 3.

Zone 3

The following portions of Borderland are currently developed, appropriate for potential future development, or intensively used for recreation. They have been designated Zone 3.

- The park entrance area, including the main parking lot, seasonal pass parking lot, Currihan corn crib, and visitor center area.
- The Ames Mansion and associated grounds, gardens, pool, and tennis court. This includes the lawn between the visitor center and Ames Mansion. (See Significant Feature Overlay, below.)
- The Ames shooting lodge and Leach Pond Dam area.
- Borderland State Park dams #1–3, Pud's Pond Dam, and Upper Leach Pond Dam.
- Smith and Wilbur farms.
- Bay Road parking lot.
- William Dean Cemetery.



- Borderland State Park
- Other Legal Interest - DCR
- Other Protected Open Space

Land Stewardship Zoning

- Zone 1
- Zone 2
- Zone 3

- Ames Mansion Landscape Significance Overlay

Borderland State Park

Figure 13.9.1

Recommended Land Stewardship Zoning

Geographic data by MassGIS, DCR GIS, 2016



1,000 Feet

Significant Feature Overlay

A Significant Feature Overlay was developed for the Ames Mansion's landscape. This overlay corresponds to the area identified in the Ames Mansion Landscape Rehabilitation Plan (DCR 2011c). Management and maintenance activities within the overlay must be consistent with this plan.

Management Recommendations

Nine priority management recommendations were developed for Borderland State Park. (Table 13.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

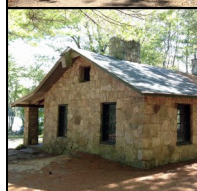
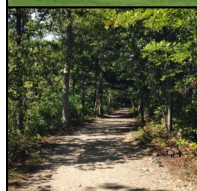
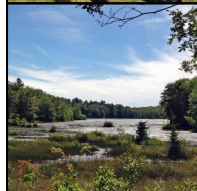
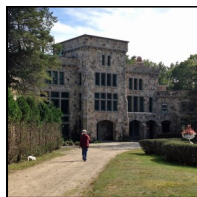
Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.

Table 13.9.1. Priority recommendations for Borderland State Park.

Recommendation	Implementation^a
Work with commercial pet walkers to obtain the required permit for their commercial activity.	B, L, R
Work with commercial photographers to obtain the required permit for their commercial activity.	B, L, R
Develop and implement guidance on management activities for all dams and dikes in the park, in order to preserve the ponds as historic landscape features.	D, P, R
Assess Potential Vernal Pools and submit paperwork to NHESP for all pools meeting certification criteria. Examine trail segments near Certified Vernal Pools; relocate heavily used trail segments 50 or more feet from pools in accordance with guidance in NHESP (2015a).	R, V
Provide ongoing maintenance, security, and oversight of activities at the Ames Mansion; maintain the associated historic landscape in accordance with the landscape rehabilitation plan (DCR 2011b).	L, P, R
Establish a new agricultural concession to provide for the continued mowing of agricultural fields in order to preserve the Smith Farm's cultural landscape.	C, L, R
Establish formal legal agreements with the park's three major partners: Friends of Borderland; Friends of Borderland Disc Golf; and the New England Mountain Bike Association.	L, R, V
Work with MassWildlife to assess the white-tailed deer population and ascertain its impacts on the park's natural and cultural resources; discuss deer management options if warranted.	P, R, V
Require all new trail projects, including disc golf paths, to undergo review and approval using the DCR Trail Proposal and Evaluation Form, and all trail maintenance activities to be reviewed for compliance under MESA and the Massachusetts Wetlands Protection Act.	R, P

a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.



Borderland State Park

The interconnectedness of Borderland's natural and cultural landscapes is at the forefront of the visitor experience. Large grassy fields, forest roads, and stone walls from historic farms occur next to ponds, formal paths, and a house constructed as parts of an early 20th century estate. The Ames Mansion, which symbolizes Borderland, has an exterior of locally cut field stones; furthering the connection between the natural and cultural landscapes. The park's two historic farm houses, the 18th century Wilbur house and 19th century Smith house, are under historic curatorship. Borderland has a strong visual character that enhances the visitor experience and attracts hikers, bicyclists, and equestrians to its trails, fishermen to its ponds; art lovers to cultural events; and golfers to its disc golf course.

Top Attractions

- Ames Mansion
- Disc golf course
- Interpretive and recreational programming
- Special cultural events, such as art shows and live theater
- Trails network

Friends Group

- Friends of Borderland
<http://www.friendsofborderland.org>

Partners & Permittees

- Borderland State Park Advisory Council
- Friends of Borderland Disc Golf

Conservation Opportunities

- Dams and dikes are part of Borderland's natural and cultural histories. Stabilize and maintain these structures to preserve the ponds as historic designed landscape features.
- Enhance the visitor experience by applying recently developed DCR regulations that manage commercial dog walking.
- Provide for the continued mowing of hayfields in order to maintain the park's historic agricultural landscape.

Park Inventory

Date Established: 1973

Landscape Designation
Parkland

Current Staffing

Year-round: 2
Seasonal: 5

Park Size (acres)

Total Area: 1,843.0
Wetlands: 331.3
Lakes and Ponds: 152.9

Rare Species

State-listed: 4

Cultural Resources

Documented: 46
National Register: 1

Miles of Roads

Paved: 0.5
Unpaved: 0.2

Miles of Trails

Official: 12.8

DCR Recreation Facilities

Disc Golf: 1
Picnic Areas: 1
Tennis Courts: 1

Appendix A. Plan Contributors.

Name	Affiliation	Area of Expertise
<i>Department of Conservation and Recreation</i>		
Allen, Kevin	Office of Cultural Resources	Historic resources
Ashton, William T.	F. Gilbert Hills State Forest	Park operations
Backman, Andy	RMP Program	Park planning
Barletta, Antonio	Government Affairs	Legislative relations
Bassett, Scott	Fire Control District 4 (Norfolk County)	Fire control
Bender, Tom	Bureau of Ranger Services	Blue Hills Reservation
Berkland, Ellen	Office of Cultural Resources	Archaeological resources
Botelho, Paul	Assistant Chief Engineer	Capital projects
Brown, Maggi	Visitor Services Supervisor	Blue Hills Reservation
Cavanagh, Paul	RMP Program	Natural resources planning
Celino, Dave	Bureau of Fire Control and Forestry	Fire management
Clifford, Paul	Visitor Services Supervisor (formerly)	Borderland State Park
Comeau, Jim	Land Protection	Land acquisition history
Connors, Nicholas	Director of External Affairs and Partnerships	Public meetings
Cooksey, William	District Manager, Blue Hills District	Park operations
Farina, Barbara	Architecture Project Manager	Blue Hills restoration projects
Fiesinger, Anne	Office of External Affairs	Public meetings
Fisher, Sean	Office of Cultural Resources	DCR archives, agency history
Galvao, Eve	GIS Program	GIS, maps
Gooch, Ken	Forest Health Forester	Hemlock treatments at Blue Hills
Greene, Judy	Office of Cultural Resources	DCR archives, plans
Gregory, Paul	Bureau of Forestry	Forest resources and infrastructure
Hart, Tony	Legal	Deeds, agency history
Hollenbeck, Kevin	District Manager, Metrowest	Park operations, Wilson Mountain
Jacoppo, John	Forest and Park Supervisor	Park operations
Jahnige, Paul	Greenways and Trails Program	Recreation
Kimball, David	GIS Program	GIS, trails
Lahiri, Chandreyee	GIS Program	GIS, metrics
Lloyd, Nathanael	GIS Program	GIS, maps
Marquardt, Mike	Fire Control District 2 (Plymouth County)	Fire Control facilities
Milano, Susan	Legal	Legal agreements
Moran, Barbara	Website Information Officer	Web page content
Nadeau, Don	GIS Program	GIS, maps
Orfant, Joe	Director, Bureau of Planning, Design, & Resource Protection (formerly)	Park planning
Orral, Norman	Director, Bureau of Planning, Design, & Resource Protection	Park infrastructure
Ouelette, Steve	Bureau of Ranger Services	Park regulations and safety
Pastore, Karl	Regional Director, South Region	Park operations
Plocinski, Loni	GIS Program (formerly)	Park planning, GIS
Provencher, Shaun	Land Protection Program	South region properties

Appendix A. Plan Contributors. (Continued)

Name	Affiliation	Area of Expertise
<i>Department of Conservation and Recreation</i>		
Quinoñes, Rebecca	Ecologist (formerly)	Wetlands and vernal pools
Scapicchio, Stephen	Revenue Director	Revenues for parks in Complex
Simmons, Ellenor	Borderland State Park	Park operations
Skalski, Jack	Administration & Finance	RMP printing and distribution
Skoczylas, Joseph	Office of Long Term Permits & Leases	Rink leases
Straub, Jim	Lakes and Ponds Program	Pond health
Strother, Eve	Deputy General Counsel	Long-term permits and leases
Survillo, Susan	Bureau of Ranger Services	Blue Hills Reservation
Tipton, Nat	RMP Program	Park planning
Whiddon, Aaron	Fire Control District 3 (Bristol County)	Fire control
Wilmot, Amy	Regional Interpretive Coordinator	Interpretation
Yetman, Joe	South Region Engineer	Capital projects
<i>Other Affiliations</i>		
Buchsbaum, Robert	Massachusetts Audubon Society	Sanctuary ecology
Cook, Terry	The Trustees of Reservations	Wilson Mountain
Francis, Mike	The Trustees of Reservations	Wilson Mountain
Harper, Lynn	Natural Heritage and Endangered Species Program	State-listed species conservation
Kemp, Marcis	Metropolitan Waterworks Museum, Inc.	Brookline and Newton Water Works
Smith, Norman	Massachusetts Audubon Society	Trailside Museum
Stainbrook, David	MassWildlife	Deer ecology and management
Williams, Doug	Massachusetts Audubon Society	Stony Brook Sanctuary

Appendix B. Public Participation.

In accordance with M.G.L. Chapter 21: Section 2F, this Resource Management Plan for the Blue Hills Complex was developed in conjunction with a public participation process to ensure that interested parties had an opportunity to review the draft RMP and offer input in its development. This appendix identifies the public participation process used to inform and review this RMP.

B.1. THE PUBLIC PARTICIPATION PROCESS

Input into Development of the RMP

Public input into the development of the Blue Hills Complex RMP began in the fall of 2015. A notice of a public meeting and of the DCR's intent to prepare an RMP for the Blue Hills Complex was published in the October 19, 2015 Environmental Monitor (Volume 84, Issue 12). Notices were also posted at the Complex's parks and e-mailed to approximately 950 stakeholders.

An initial public meeting was convened at the Blue Hills' Trailside Museum on October 28, 2015. Approximately 28 people attended this meeting, which ran from 7:00 to 8:30 P.M.

The initial public comment period ran from October 29, 2015 through November 27, 2015; 14 sets of written comments were received.

Public Comment on Draft RMP

Notice of a public meeting on the draft RMP for the Blue Hills Complex, and of the availability of the plan, was published in the October 24, 2016 Environmental Monitor (Volume 86, Issue 12). Meeting notices were also posted at the Complex's parks and mailed to stakeholders. The meeting was held on November 10, 2016 at the Sharon Public Library; approximately 27 people attended.

The public comment period on the draft RMP ran from November 11 through December 12, 2016; 5 sets of written comments were received, including those from MHC and MassWildlife.

B.2. CHANGES TO THE FINAL DRAFT OF THE BLUE HILLS COMPLEX RESOURCE MANAGEMENT PLAN

Editing of this RMP took place during and after the public comment period; formatting and typographic errors were corrected. Substantive changes to the plan's content were made in response to public comments received, and also to incorporate new and updated information.

Some public comments included specific suggestions for additional recommendations. These suggestions were evaluated to determine if they were consistent with the following three criteria:

1. The directive that RMPs "shall provide for the protection and stewardship of natural and cultural resources, and shall ensure consistency between recreation, resource protection, and sustainable forest management" as identified in M.G.L. Chapter 21: Section 2F).
2. A park's Landscape Designation.
3. Whether the proposed recommendation was a priority. To be considered a priority, it must address one or more of the following: regulatory compliance or compliance with legal agreements; the health and safety of park visitors and employees; or the imminent loss of resources.

Suggested recommendations that met all three of these criteria were considered for inclusion in the RMP.

A description of substantive changes, including new or modified recommendations, follows.

Executive Summary

The Table of Contents was updated to reflect edits and changes in page numbers.

The number of recommendations was updated to reflect edits.

Table ES.1. Recommendations updated to reflect edits.

Section 1. The Blue Hills Complex

1.3. Blue Hills Complex. A reference to the Act of the Massachusetts Legislature regarding the siting of a fire tower in the North Attleborough World War I Memorial Park was added.

Table 1.9.1. Job tiles and staffing levels were corrected.

Section 2. Blue Hills Reservation

2.2. Natural Resources. Information on the status of the Reservation's state-listed snakes was added.

The number of deer/mi² from 2013 surveys was corrected to reflect the density in suitable habitat. The deer density goal was revised to reflect DFW's current statewide goal.

The number of birds was revised to reflect more recent information in eBird.

2.4. Recreation Resources. The number of geocaches was updated.

2.5. Infrastructure. Information was added on easements and other reserved rights associated with the Carberry and Bartol parcels.

Information was added on trail crossings for Routes 138 and 28.

2.9. Recommendations. The number of recommendations from the 2011 RMP that were implemented, partially implemented, in progress, or no longer applicable was updated.

Four new recommendations were added. The first addresses the need for a carrying capacity analysis at Houghton's Pond Recreation Area. The other three recommendations address trail crossings on State Highways.

Section 3. Cutler Park Reservation

3.2. Natural Resources. The number of birds was revised to reflect more recent information in eBird.

3.4. Recreation Resources. The number of geocaches was updated.

Section 4. Wilson Mountain Reservation

4.2. Natural Resources. The number of birds was revised to reflect more recent information in eBird.

4.4. Recreation Resources. The number of geocaches was updated.

Section 5. Neponset River Reservation

5.2. Natural Resources. The number of birds was revised to reflect more recent information in eBird.

5.4. Recreation Resources. The number of geocaches was updated.

The list of recreation activities was updated to reflect that deer hunting is now allowed at the Fowl Meadow section of the Neponset River Reservation.

5.5. Infrastructure. New information was added on reserved rights associated with a Fowl Meadow parcel. The photo of a portable toilet enclosure at Farnham & Connolly was deleted to accommodate new text with minimum change to layout.

5.8. Management Practices. Information on the Fowl Meadow deer hunt was added.

Table 5.9.1. Modified draft recommendation regarding mapping trails and producing maps to include distribution of information on the DCR web page.

Section 6. F. Gilbert Hills State Forest

6.2. Natural Resources. The number of birds was revised to reflect more recent information in eBird.

6.4. Recreation Resources. Canoeing/Kayaking was added to the list of recreation activities to reflect their use in Sunset Lake.

The number of geocaches was updated.

6.7. Management Resources. The number of Fire District 4 employees was corrected.

Registry of Deeds information was added for the management of the utility corridor to the top of High Rock.

Section 7. Bristol Blake Reservation

7.2. Natural Resources. The number of known invasive plant species was updated and information was added to Table 7.2.4.

The number of birds was revised to reflect more recent information in eBird.

7.4. Recreation Resources. The number of geocaches was updated.

Table 7.5.1. Footnote references were corrected in the column headers, and the sequence of footnotes was changed.

7.5. Infrastructure. Information on roads was corrected.

Section 8. Franklin State Forest

8.2. Natural Resources. The number of birds was revised to reflect more recent information in eBird.

8.4. Recreation Resources. The number of geocaches was updated.

8.5. Infrastructure. Updated information was added on a possible land transfer.

8.8. Management Practices. Information was added to indicate that the Forest and Park Supervisor from F. Gilbert Hills maintains both signs and map boards.

Section 9. Wrentham State Forest

9.4. Recreation Resources. The number of geocaches was updated.

Section 10. Rehoboth State Forest

10.4. Recreation Resources. The number of geocaches was updated.

Table 10.9.1. Recommendations were revised to clarify that they are to take place at the Jones House Site.

Section 11. West Bridgewater State Forest

11.2. Natural Resources. The number of birds was revised to reflect more recent information in eBird.

11.4. Recreation Resources. The number of geocaches was updated.

Section 12. Bridgewater State Forest

12.4. Recreation Resources. The number of geocaches was updated.

Section 13. Borderland State Park

13.2. Natural Resources. A paragraph on vernal pools, and their proximity to trails, was added.

Information on state-listed species observed at Borderland during migration and reported on eBird was added to the state-listed species text.

The number of birds was revised to reflect more recent information in eBird.

13.4. Recreation Resources. The number of geocaches was updated.

Table 13.7.1. The number of Forest and Park Supervisor positions was corrected.

13.9. Recommendations. Two management recommendations were added and one was modified.

Appendices

Appendix C. Additional coordination with the NHESP and MassWildlife was documented.

A copy of MassWildlife's comment letter on the public review draft of the RMP was added.

Appendix D. The Massachusetts Historical Commission's comment letter on the public review draft of the RMP was added.

Appendix F. A new appendix, on the cultural development of the Blue Hills Complex, was inserted.

Appendix I. The status of recommendations from the 2011 RMP was reassessed, and two recommendations (i.e., upgrading the crosswalk at the Brian T. Broderick Stables and installing trail crossing signs on Route 28 at the Skyline Trail) previously identified as not implemented were categorized as implemented.

Appendix C. Overview of Coordination Process with the Massachusetts Natural Heritage and Endangered Species Program (NHESP).

C.1. BACKGROUND

Since its inception, DCR's Resource Management Planning Program has actively sought and applied the expertise of the NHESP. In 2006, the NHESP and DCR established the Biodiversity Stewardship Project. The main purposes of this project were to:

- Develop a process by which the two agencies would work together to facilitate NHESP delivery of biodiversity information and provision of management recommendations for RMPs; and
- Guide DCR land managers in the on-site management of rare species habitat.

Between 2006 and 2008 the NHESP prepared 10 biodiversity assessments covering 17 DCR properties (Table C.1). Information from available biodiversity assessments has informed the Existing Conditions and Recommendations sections of RMPs already adopted by the DCR Stewardship Council and has resulted in appropriate management recommendations for rare species. Information from the remaining biodiversity assessments will be used to inform future RMPs. The NHESP continues to provide guidance to the RMP Program, and in 2009 and 2012 DCR and NHESP worked together to identify the actual and potential impacts of DCR's trails and trail maintenance activities on rare species and their habitats. In addition, the NHESP informs and reviews RMPs on an ongoing basis.

Table C.1. NHESP biodiversity assessments and reports prepared for the Resource Management Planning Program.

Report Title	Date
Biodiversity Stewardship Initiative: biodiversity data products and technical assistance for managing Massachusetts' forests, parks & reservations. Final report of the FY06 pilot project. [Includes Horseneck Beach State Reservation and Mohawk Trail State Forest]	2006
Biodiversity of Blue Hills Reservation	2007
Biodiversity of J. A. Skinner and Holyoke Range state parks	2007
Biodiversity of Mt. Tom State Reservation and adjacent conservation lands	2007
Biodiversity of Mt. Sugarloaf State Reservation	2007
Biodiversity of Myles Standish State Forest	2007
Biodiversity of Lower Spectacle Pond, Sandisfield	2008
Biodiversity of Nickerson State Park and Hawksnest State Park	2008
Biodiversity of Bash Bish Falls State Park, Jug End State Reservation, Mt. Everett State Reservation, and Mt. Washington State Forest	2008
Biodiversity of Gilbert A. Bliss State Forest	2008
Recreational trail maintenance and biodiversity conservation. June 30, 2009	2009
Middlesex Fells Reservation: field surveys 2011. Prepared by the NHESP for Massachusetts Department of Conservation and Recreation. June 30, 2011	2011
Recreational trail maintenance and biodiversity conservation: select DCR urban parks. July 30, 2012	2012

C.2. ONGOING COORDINATION AND REVIEW

The DCR follows a standard approach to coordinate the preparation and review of RMPs with the NHESP. This approach may be modified in response to the particular circumstances associated with each RMP. This approach includes:

- **Staff Coordination.** The NHESP has designated an official point of contact for RMPs and it is through this contact that all subsequent interaction with NHESP is coordinated.
- **Advance Notice.** DCR provides NHESP with a list of current and upcoming RMPs.
- **Data Request.** Up to date information is formally requested by DCR at the start of the planning process.
- **Consultation.** Informal consultation regarding interpretation of data provided by the NHESP may occur following NHESP's response to data request.
- **Application of Other NHESP Data.** Information and recommendations contained in biodiversity assessments, if applicable, are incorporated into the draft RMP early in the writing process.
- **Submission of Internal Draft RMP to NHESP.** The internal version of the draft RMP is submitted to the NHESP for formal review. This takes place before the draft plan is released to the public, so that the public review draft includes revisions made in response to NHESP comments and recommendations.
- **Response to Comments.** NHESP provides comment letters on the draft RMP that distinguish between what must be done (i.e., actions required for compliance under the Massachusetts Endangered Species Act (MESA)) and additional actions that may be taken to enhance rare species populations and habitats. As a rule, both types of recommendations are added to the revised draft. [Note: Because the NHESP's recommendations are incorporated into RMPs, each RMP contains a *de facto* management strategy and guidance for all state-listed species within a planning unit.]
- **Submission of Public Draft RMP to NHESP.** The public draft RMP is submitted to the NHESP for formal review and comment. Under MESA, all "State agencies shall submit to NHESP any draft management plans they prepare for State owned lands on which State listed species are known to occur" (321 CMR 10.05(2)C.2).
- **Response to Comments.** NHESP comments are addressed with all others received during the public comment period.
- **Additional Coordination.** The NHESP is frequently consulted, in their roles as both regulator and subject matter expert, to discuss other (i.e., non-NHESP) rare species-related comments.

C.3. COORDINATION AND REVIEW FOR THIS RMP.

Coordination with the NHESP began prior to the official start of work on the RMP and continued through review of the internal draft RMP.

- **May 8, 2015.** NHESP provides rare species, vernal pool, and natural community data for properties in the Blue Hills Complex.
- **May 18, 2015.** NHESP provides DCR with information on threats invasive plants pose to state-listed plants at Cutler Park Reservation.
- **July 23, 2015.** NHESP provides rare species, vernal pool, and natural community data for additional properties in the Blue Hills Complex.

- **July 27, 2015.** NHESP provides information on potential risks that current recreation activities at Borderland State Park pose to the data-sensitive Endangered animal.
- **July 29, 2015.** NHESP provides information on changes in the occurrence of State-listed species at the Blue Hills between the previous RMP (DCR 2011) and current RMP.
- **September 30, 2015.** At DCR's request, NHESP reviews DCR activities at the North Attleborough fire tower for potential impacts on rare species.
- **November 11, 2015.** NHESP provides rare species, vernal pool, and natural community data for Rehoboth State Forest.
- **December 17, 2015.** Consultation with NHESP regarding appropriate Land Stewardship Zoning for West Meadow Pond at West Bridgewater State Forest.
- **January 6, 2016.** NHESP provides information on habitat used by the data-sensitive Endangered animal at Borderland State Park.
- **January 22, 2016.** DCR requests that NHESP allow the sharing of the Blue Hills' biodiversity assessment (NHESP 2007) with contractors preparing the fire management plan for the Blue Hills Reservation.
- **August 9, 2016.** DCR submits the internal review draft of the Blue Hills Complex RMP to the NHESP for review as required under MESA.
- **August 23, 2016.** Comments received from NHESP on internal review draft of RMP. During NHESP's review, other MassWildlife personnel reviewed the draft RMP and commented on aspects of the plan related to the ecology and management of game species. One set of comments, representing MassWildlife's full range of interests, was submitted (French and Conlee 2016). These comments are presented in their entirety on the following pages.
- **November 9, 2016.** NHESP provides information on Massachusetts copperhead populations, in response to inquiry from DCR.
- **December 1, 2016.** Comments provided by MassWildlife on the public review draft of the RMP. These comments are presented in their entirety immediately following MassWildlife's comments on the internal review draft.
- **December 19, 2016.** MassWildlife provides clarification on comments on public review draft of RMP, in response to inquiry from DCR.



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Jack Buckley, Director

August 23, 2016

Paul M. Cavanagh
Resource Management Planner
Bureau of Planning, Design, & Resource Protection
Department of Conservation and Recreation
South Region Headquarters
194 Cranberry Road
South Carver, MA 02366

RE: Internal draft of the *Blue Hills Complex Resource Management Plan*

Dear Mr. Cavanagh:

The Massachusetts Division of Fisheries and Wildlife is pleased to offer comments on the August, 2016, internal draft of the *Blue Hills Complex Resource Management Plan*. We appreciate DCR's attention to the conservation of biodiversity on these important properties and we look forward to working with our sister agency on implementing the relevant recommendations of this plan.

In general, we support the Resource Management Plan as written, excepting a few concerns. Our concerns are noted below, by page number of draft. Note that our agency prefers to be called the Massachusetts Division of Fisheries and Wildlife or MassWildlife, not DFW.

P. v, Table ES-1, Summary of Management Recommendations for the Blue Hills Complex: Please revise the recommendation for control of deer populations to read as follows: "Promote the regeneration of native forests by decreasing deer populations to the recommended density of 6 to 18 deer/mi² of forest, through regulated hunting, in order to reduce deer browse." Note that our recommendation applies to all DCR properties in this Complex, not just to the Blue Hills Reservation. The same language should be used on p. 2-50, in Table 2.9.1, Priority Recommendations for Blue Hills Reservation, and for all subsequent tables listing the priority recommendations for each property.

P. 1-11, Rare Species: An additional MESA-listed species, Gypsywort (*Lycopus rubellus*, Endangered), has recently been documented from the Blue Hills Reservation. Please add it to your discussion of rare species, as it is not otherwise known from the Complex. Note that pages 2-1 and 2-7 also discuss the MESA-listed species at the Blue Hills Reservation; please revise text and Table 2.2.3 as needed.

P. 1-13, Priority Natural Communities: The Natural Heritage and Endangered Species Program (NHESP) database has no documented record of Alluvial Red Maple Swamps or Woodland Vernal Pools (as a natural community) from the Complex. There are, of course, 79 Certified Vernal Pools documented from the Complex properties, as well as 157 Potential Vernal Pools, but NHESP has not formally documented Woodland Vernal Pool as a natural community from the properties.

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P. 2-9, Natural Communities of Blue Hills Reservation: The NHESP database includes documented information on only the following natural communities at the Blue Hills Reservation: Atlantic White Cedar Bog, Inland Atlantic White Cedar Swamp, Level Bog, Open Talus/Coarse Boulder Community, and Ridgetop Pitch Pine-Scrub Oak Community. If DCR has data on the 15 other types of natural communities on the Reservation, please send it to NHESP, so our records can be updated.

P. 2-10, Wildlife of the Blue Hills Reservation: To keep this paragraph consistent with the technical report of November, 2013 (MassWildlife and DCR, 2013), please revise the second sentence to read: "In 2013, personnel from the DCR and MassWildlife conducted surveys to estimate the density of deer in the Reservation; the resulting estimate of about 85 deer/mi² of forest was "well-above MassWildlife's statewide deer management range of 6–18 deer/mi² of forest" (MassWildlife and DCR 2013)." This will clarify that the estimate refers to forested areas, not to the Reservation as a whole. Page 2-40 should also be revised to reflect this clarification.

P. 2-23, Recreation Resources of Blue Hills Reservation: Please add information on the special deer hunt by permit only conducted in designated areas on the Reservation. While this hunt is designed to reduce deer densities in the Reservation to acceptable levels, it also provides a recreational opportunity for hunters.

P. 2-49, Table 2.9.1, Priority Recommendations for Blue Hills Reservation: We strongly agree with DCR's recommendations to:

- Evaluate locations of trails relative to the dens of state-listed snakes and reroute or close trail segments, as necessary, in accordance with *Trails Guidelines and Best Practices Manual* (DCR 2010a);
- Reinstitute seasonal nighttime closings of Chickatawbut Road, east of Route 28, and Wampatuck Road, as recommended by the NHESP (2007);
- Exclude all non-emergency vehicles, except in exigent situations, and non-utility company motor vehicles from trails in rare snake habitat east of Route 28;
- Plan landscaping, maintenance, and construction to avoid impacts to rare snakes, as recommended by NHESP (2007); and
- Promote the regeneration of native forests by decreasing deer populations to the recommended density of 6 to 18 deer/mi² of forest, through regulated hunting, in order to reduce deer browse. (our recommended revised language)

We would note that the recommended seasonal nighttime closings of Chickatawbut Road would be during the months of July and August.

P. 3-6, Table 3.2.5, Known Natural Communities of Cutler Park Reservation: The NHESP database includes documented information on only one Level Bog at Cutler Park. If DCR has data on the four other types of natural communities on the Reservation, please send it to NHESP, so our records can be updated.

P. 5-4, Table 5.2.3, State-listed Species of Neponset River Reservation: The last documented report of Least Bittern nesting on the Neponset River Reservation was in 1990, more than 25 years ago. Therefore, NHESP considers this species to be Historic at this site; we recommend DCR remove Least Bittern from this table.

P. 5-5, Vegetation of the Neponset River Reservation: As for the nearby Blue Hills Reservation, the vegetation of the Neponset River Reservation has been highly modified by deer browse, which has reduced the abundance of ground cover and shrub layer vegetation. Please note this impact to vegetation in this section of the Plan.

Pp. 5-5, 6-5, 7-5, 8-4, 9-5, 10-4, 11-5, 12-4, 13-5, Known Natural Communities of Neponset River Reservation, F. Gilbert Hills State Forest, Bristol Blake State Reservation and Stony Brook Sanctuary, Franklin State Forest, Wrentham State Forest, Rehoboth State Forest, West Bridgewater State Forest, Bridgewater State Forest, Borderland State Park: The NHESP database includes no documented information on natural communities on these properties. If DCR has data on the types of natural communities at these sites, please send it to NHESP, so our records can be updated.

P. 11-7, Recreation Resources of West Bridgewater State Forest: Please add hunting to the list of recreational activities known to take place on the property.

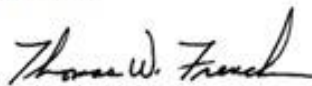
P. 13-5, Vegetation of the Borderland State Park: As demonstrated by MassWildlife surveys, the vegetation of the Borderland State Park has been highly modified by deer browse, which has reduced the abundance of ground cover and shrub layer vegetation. Please note this impact to vegetation in this section of the Plan.

P. 13-25, Table 13.9.1, Priority Recommendations for Borderland State Park: While we recommend that deer densities on all DCR properties in this Complex are controlled, through regulated hunting, to the recommended density of 6 to 18 deer/mi² of forest, this is particularly important for Borderland State Forest, where there are demonstrated impacts to vegetation because of high deer density. Please add this recommendation to this table.

Appendix C, Overview of Coordination with NHESP: While we certainly appreciate DCR's close coordination with NHESP in the development of this Plan, we would suggest that this appendix be re-titled Overview of Coordination with MassWildlife. The emergence of the necessity to control deer populations at the Blue Hills, Fowl Meadow, and indeed other properties, such as Borderland, has brought other sections of MassWildlife into this coordinated process. Going forward, we expect that our Wildlife and Fisheries sections will likely have vital contributions to DCR's Resource Management Plans, and we think this is the appropriate place to acknowledge those contributions.

Thank you for allowing MassWildlife the opportunity to comment on the draft Resource Management Plan. If you have any questions regarding our comments, please contact David Stainbrook, Deer/Moose Biologist, or Lynn Harper, Habitat Protection Specialist, in our Westborough office at 508-389-6300.

Sincerely,



Thomas W. French
Assistant Director
Natural Heritage and
Endangered Species Program



Laura Conlee
Assistant Director
for Wildlife



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Jack Buckley, Director

December 1, 2016

Department of Conservation and Recreation
Office of Public Outreach
251 Causeway St., 6th Floor
Boston, MA 02114

RE: Public draft of the *Blue Hills Complex Resource Management Plan*

Dear Sir or Madam:

The Massachusetts Division of Fisheries and Wildlife is pleased to offer comments on the November, 2016, public draft of the *Blue Hills Complex Resource Management Plan*. We appreciate DCR's attention to the conservation of biodiversity on these important properties and we look forward to working with our sister agency on implementing the relevant recommendations of this plan.

Thank you for including most of the concerns we expressed in our comments on the internal draft of the Plan. However, we do want to clarify a few remaining details regarding the impact of over-abundant deer populations on the properties in this complex.

P. v, Table ES-1, Summary of Management Recommendations for the Blue Hills Complex: Thank you for revising the recommendation on deer populations as we recommended. Note, however, that our recommendation applies to all DCR properties in this complex, not just to the Blue Hills Reservation. It is clear from MassWildlife surveys this year that deer browse is impacting vegetation significantly, not just at the Blue Hills itself, but also at the Neponset River Reservation and Borderland State Park. We expect that the same impacts are very likely occurring on most, if not all, of the properties in this complex. Therefore, we recommend that all properties be covered by this management recommendation.

P. 2-10, Wildlife of the Blue Hills Reservation: As we noted in our earlier comments, to keep this paragraph consistent with the technical report of November, 2013 (MassWildlife and DCR, 2013), please revise the second sentence to read: "In 2013, personnel from the DCR and MassWildlife conducted surveys to estimate the density of deer in the Reservation; the resulting estimate of about 85 deer/mi² of forest was "well-above MassWildlife's statewide deer management range of 6–18 deer/mi² of forest" (MassWildlife and DCR 2013)." This will clarify that the estimate refers to forested areas, not to the Reservation as a whole. Page 2-40 should also be revised to reflect this clarification.

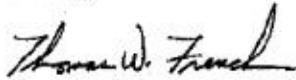
P. 5-5, Vegetation of the Neponset River Reservation: As for the nearby Blue Hills Reservation, the vegetation of the Neponset River Reservation has been highly modified by deer browse, which has reduced the abundance of ground cover and shrub layer vegetation. Please note this impact to vegetation in this section of the Plan, as we recommended in our earlier comments.

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Appendix C, Overview of Coordination with NHESP: While we certainly appreciate DCR's close coordination with NHESP in the development of this Plan, we would suggest that this appendix be re-titled Overview of Coordination with MassWildlife, as we recommended in our earlier comments. The emergence of the necessity to control deer populations at the Blue Hills, Fowl Meadow, and indeed other properties, such as Borderland, has brought other sections of MassWildlife into this coordinated process. Going forward, we expect that our Wildlife and Fisheries sections will likely have vital contributions to DCR's Resource Management Plans, and we think this is the appropriate place to acknowledge those contributions.

Thank you for allowing MassWildlife the opportunity to comment on the draft Resource Management Plan. If you have any questions regarding our comments, please contact David Stainbrook, Deer/Moose Biologist, or Lynn Harper, Habitat Protection Specialist, in our Westborough office at 508-389-6300.

Sincerely,



Thomas W. French
Assistant Director
Natural Heritage and
Endangered Species Program



Michael Huguenin
Assistant Director
of Operations

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Appendix D. Overview of Coordination Process with the Massachusetts Historical Commission (MHC).



The Commonwealth of Massachusetts William Francis Galvin, Secretary of the Commonwealth Massachusetts Historical Commission

December 5, 2016

Jeffrey Harris
Preservation Planner
Massachusetts Department of
Conservation & Recreation
251 Causeway Street, Suite 600
Boston, MA 02114-2119

RE: Blue Hills Complex Management Plan, Milton, Quincy, Braintree, Boston, Dedham, Needham, Norwood,
Randolph, Canton, Franklin, Foxborough, Norfolk, Wrentham, Rehoboth, North Attleborough, Sharon,
West Bridgewater, Bridgewater and Easton, MA. MHC # RC.46688.

Dear Mr. Harris:

Thank you for providing the Massachusetts Historical Commission (MHC) with a copy of the draft Resource Management Plan for the Blue Hills Planning Unit, dated November 2016, received by the MHC on November 21, 2016. The draft plan takes into account historic and archaeological resources and outlines the MHC notification and review processes for state projects that may be proposed and require archaeological investigations, pursuant to MGL c. 9, ss. 26-27C (950 CMR 70-71). Projects requiring federal funding or permits will be reviewed pursuant to Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800).

DCR may wish to contact the Massachusetts Archaeological Society and city/town Historical Commissions regarding recruiting volunteers to assist in Conservation Restriction property monitoring and stewardship of parks with historic and archaeological significance.

MHC would appreciate receiving MHC Inventory Forms for historic properties, and archaeological site forms (Form Ds) for ancient and historical period archaeological sites, identified in the Plan and OCR files and not already included in MHC's Inventory of Historic and Archaeological Assets. As time and funding become available, MHC continues to recommend that reconnaissance archaeological surveys (950 CMR 70) be conducted for the Blue Hills Complex parks. The investigations would provide detailed archaeological sensitivity assessments for parks, and recommendations for archaeological testing to locate and identify significant archaeological resources. MHC also continues to recommend park staff trainings by DCR OCR staff, for monitoring and protection of significant archaeological resources and special maintenance and preservation needs of historic buildings.

If you have any comments, please contact Jonathan K. Patton of my staff.

Sincerely,

A handwritten signature in blue ink that reads "Brona Simon".

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: Ellen P. Berkland, DCR

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(617) 727-8470 • Fax: (617) 727-5128
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Appendix E. Select Massachusetts Regulations Applicable to the Blue Hills Complex.^a

CMR ^b	Title	Comments
105 CMR 410.00	Minimum Standards of Fitness for Human Habitation (State Sanitary Code, Chapter II)	Addresses many aspects of human habitation; section 410.152 prohibits the continued use of privies unless approved in writing by the local Board of Health
105 CMR 430.00	Minimum Standards for Recreational Camps for Children (State Sanitary Code, Chapter IV)	Regulates both residential and day camps, such as the Massachusetts Audubon Society and YMCA day camps at the Blue Hills.
105 CMR 435.00	Minimum Standards for Swimming Pools (State Sanitary Code, Chapter V)	Includes regulations for Semi-Public Pools, such as the one at the YMCA Ponkapoag Outdoor Center.
105 CMR 440.00	Minimum Standards for Developed Family Type Campgrounds (State Sanitary Code, Chapter VI)	Regulates campgrounds where three or more families or groups stay overnight or for longer periods.
105 CMR 445.00	Minimum Standards for Bathing Beaches (State Sanitary Code, Chapter VII)	Specifies water quality monitoring and closure posting requirements at bathing beaches.
105 CMR 590.00	State Sanitary Code Chapter X – Minimum Sanitation Standards for Food Establishments	Regulates establishments that store, prepare, package, serve, vend, or otherwise prepare food for human consumption.
301 CMR 11.00	Massachusetts Environmental Policy Act (MEPA)	Requires the systematic review of any work or activity undertaken by an agency (e.g., the DCR); involving state permitting or financial assistance; or a transfer of state land.
301 CMR 12.00	Areas of Critical Environmental Concern	Establishes procedures to designate ACECs and directs EOEEA agencies to “take action, administer programs, and revise regulations” in order to acquire useful scientific data; preserve, restore, or enhance resources; and ensure activities are carried out to minimize adverse effects.
302 CMR 10.00	Dam Safety	Includes information on the size and hazard classification of dams, as well as dam inspection, repair, alteration, and removal.
302 CMR 11.00	Parkways, Traffic, and Pedestrian Rules	Requires construction and access permits for the digging up or physically modifying any DCR parkway or other property, or the dumping of material or planting of trees on the same.
302 CMR 12.00	Parks and Recreation Rules	Governs the conduct of activities on DCR properties, including activities in: parks, the Appalachian Trail, campsites, golf courses, skating rinks, and pools. Includes provisions for boating; fires; hunting, fishing and trapping; pets and other domesticated animals; recreational vehicles; and permits.
304 CMR 7.00	Management Plans and Massachusetts Wildlands	Requires a management plan for each state reservation, park, and forest under the control of the Department of Environmental Management. This regulation was superseded by MGL Chapter 21: Section 2F, which requires management plans for all DCR “reservations, parks, and forests.”
304 CMR 11.00	Forest Cutting Practices Act	Regulates cutting on “all land devoted to forest growth owned or administrated by private persons, corporations or organizations” or governmental agency. A forest cutting plan is required for the cutting of more than 50 cords or 25,000 board-feet of wood.

Appendix E. Select Massachusetts Regulations. (Continued)

CMR^b	Title	Comments
310 CMR 9.00	Waterways	<p>These regulations protect and promote the public's interest in tidelands, Great Ponds, and non-tidal rivers; preserve and protect the public's rights in tidelands; protect the public health, safety, and general welfare as it may be affected by any project in tidelands, Great Ponds, or non-tidal rivers; support efforts to revitalize unproductive property along urban waterfronts; and foster the rights of the people to values identified in Article XCVII of the Massachusetts Constitution.</p> <p>These regulations define Great Ponds, and assign their control to the DEP. Chapter 91 permits or licenses are required for the construction, alteration, or removal of both temporary and permanent structures, and the placement of fill. Licenses are also required for beach nourishment, dredging, disposal of unconsolidated material below the low water mark, burning rubbish upon the water, and lowering the water level.</p>
310 CMR 10.00	Wetlands Protection Act	Regulates many activities within 100 feet of wetlands and certified vernal pools, and within 200 feet of perennial streams and rivers.
310 CMR 15.00	Title 5: State Environmental Code	Standard requirements for the siting, construction, inspection, upgrade and expansion of on-site sewage treatment and disposal systems for the transport and disposal of septage.
310 CMR 19.00	Solid Waste Management	Regulates the storage, transfer, processing, treatment, disposal, use and reuse of solid waste; including stumps and other organic materials.
310 CMR 22.00	Drinking Water	Includes regulations for Transient Non-community Water Systems, which provide water to 25 or more persons at least 60 days/year.
312 CMR 2.00	Massachusetts Underwater Archaeological Resources	Standardizes procedures for the investigation, exploration, recovery, reporting, and preservation of shipwrecks and other underwater archaeological finds within inland or coastal waters.
314 CMR 4.00	Massachusetts Surface Water Quality Standards	These standards "secure to the Commonwealth the benefits of the Clean Water Act." They designate the most sensitive uses for which the waters of the Commonwealth shall be enhanced, maintained and protected; prescribe minimum water quality criteria; and contain regulations necessary to achieve designated uses and maintain water quality. These standards include the identification and regulation of Outstanding Resource Waters (ORWs).
314 CMR 9.00	401 Water Quality Certification for Discharge of Dredged or Fill Material, Dredging, and Dredged Material Disposal in Waters of the United States Within the Commonwealth	These regulations establish procedures and criteria for the discharge of dredged or fill material, dredging, and dredged materials in waters of the United States within the Commonwealth.
320 CMR 2.00	Public Access Facilities	Regulates use of Office of Fish and Boating Access (formerly Public Access Board (PAB)) boat ramps. These facilities may only be used for "the launching and retrieval of any trailered or cartop watercraft and parking of the vehicle used to launch and retrieve watercraft in a properly marked parking area."
321 CMR 2.00	Miscellaneous Regulations Relating to Division of Fisheries and Wildlife	Addresses a variety of fish and wildlife issues, including scientific collecting permits and the importation, liberation, and transportation of fish, amphibians, reptiles, birds, and mammals.
321 CMR 3.00	Hunting	<p>Regulates hunting and trapping in Massachusetts.</p> <p>Additional hunting regulations, specific to DCR parks, are identified in 302 CMR 12.00.</p>
321 CMR 4.00	Fishing	<p>Regulates the taking of freshwater fish in Massachusetts.</p> <p>Additional fishing regulations, specific to DCR parks, are identified in 302 CMR 12.00.</p>

Appendix E. Select Massachusetts Regulations. (Continued)

CMR^b	Title	Comments
321 CMR 10.00	Massachusetts Endangered Species Act (MESA)	<p>MESA protects rare species and their habitats by prohibiting the “Take” of any plant or animal species listed as Endangered, Threatened, or Special Concern.</p> <p>Activities that may alter rare species habitat (e.g., trail maintenance, vista pruning, digging archaeological test pits) are subject to regulatory review.</p> <p>On state-owned land, “all practicable means and measures shall be taken to resolve conflicts between the protection, conservation, and restoration of state-listed species...and other uses of such lands in favor of the listed species.”</p>
323 CMR 2.00	The Use of Vessels	Regulates the operation of motorboats, canoes, and kayaks. Includes special regulations for select rivers, lakes, and Great Ponds. Also regulates water skiing.
323 CMR 3.00	The Use of Recreation Vehicles and Snow Vehicles	These regulations specify that no person shall operate a snow or recreation vehicle on publicly-owned property except on trails marked and designated for such use; or in a manner that causes damage to...lands owned or managed by the Department of Conservation and Recreation.
323 CMR 4.00	The Operation of Personal Watercraft	These regulations “protect the public safety by establishing rules of conduct governing the operation of personal watercraft.”
333 CMR 10.00	Certification and Licensing of Pesticide Applicators	Requires that anyone applying herbicides, insecticides, or other pesticides on non-residential property (i.e., all DCR properties) must be certified and licensed.
350 CMR 4.00	Traffic Rules	Regulations for former MDC properties related to vehicle operator’s compliance with traffic signals, traffic control devices, traffic pavement markings, police, and rangers. Provides rangers the authority to have cars towed. An updated version of these regulations is in development.
350 CMR 5.00	Parking and Penalties Thereof	Regulations for former MDC properties related to parking. Specifies the amount of fines. An updated version of these regulations is in development.
521 CMR 19.00	Architectural Access Board; Recreational Facilities	<p>Accessibility standards for rinks, pools, beaches, playgrounds, picnic areas, campsites, and other indoor and outdoor facilities.</p> <p>Requires that 5% of picnic facilities be accessible.</p>
521 CMR 23.00	Architectural Access Board; Parking and Passenger Loading Zones	Specifies dimensional, pavement marking, and sign requirements for accessible parking spaces and passenger loading zones.
527 CMR 14.00	Flammable and combustible liquids, flammable solids of flammable gasses.	Regulates the storage and handling of flammable liquids, combustible liquids, flammable solids, and flammable gases. Limits the storage of gasoline without a permit to: buildings not used for habitation nor frequented by the public, provided that the total quantity shall not exceed seven gallons and provided that it is stored in one or more approved containers.
801 CMR 4.02	Fees for Licenses, Permits, and Services to be Charged by State Agencies	Specifies fees for camping; parking; use of picnic pavilions, athletic fields, ice rinks, golf courses; special use permits; timber harvests, forester licensing, well digging, dam safety permits, and other miscellaneous activities.
950 CMR 70.00	Massachusetts Historical Commission	<p>Standardizes procedures for conducting archaeological investigations in Massachusetts by controlling activities that will disturb archaeological properties.</p> <p>Requires a permit from the State Archaeologist for conducting “field investigation activities on any land owned or controlled by the Commonwealth.”</p>

Appendix E. Select Massachusetts Regulations. (Continued)

CMR^b	Title	Comments
950 CMR 71.00	Protection of Properties Included in the State Register of Historic Places	Requires Massachusetts Historical Commission notification of projects undertaken, funded, or licensed by a state body.
<p>a. A variety of state regulations apply to both the operation of state parks and the behavior of visitors to these parks. This table includes only those regulations directly related to topics addressed in the main body of this RMP.</p> <p>b. The Code of Massachusetts Regulations, or CMR, “contains regulations promulgated by state agencies” (Massachusetts Trial Court Law Libraries 2012). These regulations “have the force and effect of law like statutes.”</p>		

Appendix F. Overview of the Cultural Development of the Blue Hills Complex.

This overview provides a synthesis of existing knowledge, and places DCR properties within a geographical and temporal complex. Further it suggests the range and types of archaeological sites that may exist on DCR properties within the complex, thereby providing a framework for their protection.

Pre-Contact Archaeology

For most of the pre-Contact period, 12,000–450 years ago, the river drainages defined the physical space within which the First People lived and operated. The many habitats associated with these drainages included wetlands, estuaries, and tributaries and the primary attraction of these locations was the seasonal availability of an endless supply of fresh fish. Drainages also provided transportation routes on these water courses, and offered places for specialized and sacred space, and settlement.

In New England, the pre-Contact period is classified into three chronological stages of cultural development: Paleo-Indian Period (12,000–9,000 Before Present or BP); Archaic Period (9,000–3,000 BP); and Woodland Period (3,000–450 BP).

Paleo Indian Period

The peopling of New England began shortly after the glaciers receded from this region. The first colonists, Paleo-Indian hunters and gatherers entered a tundra-like landscape and settled near major rivers and lakes. One of southern New England's best known Paleo sites occurs at Lake Assawompsett in Middleboro, located within the Upper Taunton River watershed where six of the Blue Hills Complex properties are located. The northern most properties of the Blue Hills Complex also contain Paleo-Indian sites along both the Charles and Neponset rivers.

As the climate changed over the next several thousand years, continuously milder conditions encouraged a succession of forest types. The barren landscape was replaced by a spruce parkland/woodland, then by a pine/oak forest, and slowly by the mixed deciduous forest of today. Local wildlife also changed and adjusted to new habitats by moving elsewhere, adapting, or

becoming extinct. At the same time, sea levels were continuously rising, and much of the former coastal plain was submerged and estuaries were created along the newly defined coast.

Archaic Period

The First People adapted to the new resource base by developing new tool types and technologies. The abundant natural resources of rivers with their many tributaries and estuaries, and the close proximity of well-watered coastal plains, provided year-round natural resources for procurement. Particularly important sites were situated next to the first set of falls on a river, just above the head of the estuary. So important were these sites for the seasonal availability of fish, archaeological evidence suggest that Indigenous Americans returned to these riverside locations from the Middle Archaic (8,000 BP) through the Late Woodland Period (450 BP). In the winter, tribes moved into sheltered interior uplands. During these months the focus of subsistence activities shifted to the gathering of nuts, berries and seeds; and hunting and trapping mammals, reptiles, and birds in the upland forests.

The exploitation of anadromous fish would continue to be the basis of the indigenous economy throughout history. Middle Archaic site types include semi-permanent base camps along rivers, streams, and wetlands; special purpose camps in uplands or near wetlands; stone tool workshops; and quarries. Late Archaic sites (6,000–3,000 BP) are most represented in this region's prehistory. With an increase in population, and settlement into well-defined territories within the drainages, Late Archaic sites were located along river banks, and fresh water sources, meadowlands, rock shelters, and quarries. Emphasis was also placed on procuring raw material from quarries within these river drainages.

Woodland Period

Stabilization of the coastline, changing artifact types, production of pottery and a shift to horticulture define this time period. With increased sedentism, Woodland Period sites are often large and along waterways. In the Late Woodland Period, food production increases at the coast and in riverine zones. During the Contact Period (1500–1620)

Indigenous communities settled within river drainages on terraces and knolls, at confluence points, and the coast. These people flourished until the first Europeans entered the region.

The existing archaeological record for the metropolitan Boston area reveals that this portion of Massachusetts was continuously occupied for at least 12,000 years. Early historic accounts only document the presence of those Indigenous Americans who were living primarily in coastal areas at the time of that contact, and they are not indicative of the rich cultural heritage that was actually coming to an end as a result of that contact. These First People, descendants of the Massachuset, are still here and active in identifying, interpreting, and protecting their cultural heritage.

In 1657, Dorchester granted the Neponset Indians a tract of land that was to be used by Reverend John Eliot to establish his second praying Indian town (in the land that today comprises the Ponkapoag Golf Course). The 6,000 acre Punkapoag Plantation eventually achieved church status and remained one of the principal praying towns (out of eleven in Massachusetts) until King Phillip's War (1675). The plantation persisted until at least 1692. Ponkapoag Plantation has yet to be archaeologically discovered. The potential for pre-Contact archaeological resources to exist in the Blue Hills Complex's forests is based upon several criteria. These include types and conditions of soil, proximity to recorded prehistoric sites, degree of slope and slope orientation, and proximity to freshwater sources and raw materials. Potential cultural resources could be stone tools, burials, campsites, hearths, storage features, quarries, fish weirs, caches, workshops, or even a village. All 12 parks within the Blue Hills Complex meet multiple criteria for having a high sensitivity for pre-Contact sites.

Post-Contact Archaeological Resources

Post-Contact (i.e., historical) Archaeology focuses on the physical remains of activities from the times when Europeans first made contact with the local Indigenous Americans, about 500 years ago, and runs almost to the present. It deals with societies whose documentary sources can provide a database for identification of artifacts and features, as well as the interpretation of the behavior patterns that created them. Thorough archival research (probate records, deeds, documents, historic maps and

atlases) can often be as important as the actual process of excavation at historic sites. Post-Contact archaeological sites are not easily generalized and their form, size, and manner in which they were created differs greatly; they may have resulted from domestic personal or household activities, or from commercial, industrial, agricultural, ecclesiastical, or military activities and they may be in, or were in, urban or rural settings.

Industrial Archaeology is a specialized sub-field of historical archaeology that focuses on the remains of American industry. Industrial archaeologists study the remains of buildings that housed commercial and manufacturing activities, or related structures and features such as canals, bridges, roadways, and dams. Machinery, which represent both the mechanisms by which products were made, and the by-product of the technological process itself, as well as the lives of the workers who used them, are among the artifacts and topics studied by Industrial Archaeologists.

As with the early peopling and exploitation of the major river drainages in the Blue Hills Complex area, the European settlers began harnessing and controlling water to power mills. Thousands of mill and dam sites are located in the six major river drainages located within the Blue Hills Complex RMP, and few are thoroughly documented. Rivers provided early transportation networks, and settlements soon developed around milling complexes located along these rivers. Almost every 17th century New England village had small water-powered grist, saw and/or fulling mills. By the 18th century waterpower was still dependent on rainfall, runoff, and drainage, with power capacity reliant on volume and fluctuation of the water source. Most New England mill sites contained the following components: waterwheel; dam (masonry or earthen) upstream to divert water; headrace to carry water to the mill; flume to receive water from a canal, headrace, or dam; and a tailrace to carry water from the wheel back to the stream below the mill (Hunter 1979). In addition to the industrial components of a mill, entire communities developed around these sites. With the expansion and re-use of existing industrial sites, and the advent of the steam engine which became more reliable and mobile, mill towns were left to reinvent themselves and into the broader landscape. During the historic period, the major rivers within the complex provided harnessed

waterpower for early mills well into the mid-20th century, and the archaeological record ensures they are still a part of the landscape today.

Historic Resources

European explorers had been visiting the Atlantic Coast of North America since at least the early sixteenth century. Repeated contacts with Native Americans likely occurred during these voyages. Settlement along the coast began in the early 1500s,

and continued for over a century. The Blue Hills Complex is located in eastern Massachusetts, an area settled by the British in the early 1600s. This influence remains evident in the names of many of its towns, counties, and rivers. To a lesser degree, it is reflected in the complex's historic resources. There are no extant historic resources associated with Native Americans.

Appendix G. DCR Cultural Resources Policy.

POLICY: The Department of Conservation and Recreation shall provide for the stewardship of all known and potential cultural resources on DCR property through sensitive resource management and planning and compliance with local, state, and federal historic preservation regulations. DCR actions and activities shall promote and foster the preservation, protection, and appreciation of these resources.

APPLICABILITY: All Divisions, Departments, Bureaus, and Staff

PROCEDURES:

I. Definitions

The following definitions explain terms used throughout this policy directive:

Cultural Resource—A district, site, building, structure, landscape, object or ethnographic resource that is at least fifty years old and has important historical, cultural, scientific, or technological associations. Cultural resources also include pre-historic or historic archaeological sites containing physical remains or indications of past human activity and/or any artifacts that have been constructed or manipulated by human influence and holding potential significance for understanding past, present, or future human behavior.

Cultural Resources Inventory (CRI)—A baseline inventory of cultural resources in the DCR system, consisting of location maps, related reports, and individual site inventory forms with background historical information.

National Register—The National Register of Historic Places is the official federal list of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering and culture.

Project—Any action, activity, program, construction or land modification that is directly undertaken by DCR, receives any financial assistance from DCR, or requires the issuance of a license or permit by DCR.

Project Notification Form—The form that is completed by DCR or a private project proponent in order to notify the Massachusetts Historical Commission of a project requiring review under state or federal historic preservation regulations.

Secretary of the Interior's Standards for the Treatment of Historic Properties—General guidelines for the preservation, rehabilitation, restoration, and reconstruction of historic buildings, established by the National Park Service to encourage consistent preservation practices at the national, state, and local levels.

Site—The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.

State Register—The State Register of Historic Places includes the following properties:

- All districts, sites, buildings, or objects listed in the National Register of Historic Places or formally determined eligible for listing in the National Register of Historic Places by the Keeper of the Register, United States Department of the Interior;
- All local historic districts or landmarks designated under local ordinances or by-laws;
- All structures and sites subject to preservation restrictions approved or held by the MHC;
- All historical or archaeological landmarks certified or listed pursuant to MGL Ch. 9, Sec. 26D and 27.

II. Mission Statement—Office of Cultural Resources

The Office of Cultural Resources (OCR) preserves the cultural heritage of Massachusetts through stewardship of DCR's historic buildings, structures, landscapes, archaeological sites, and archival resources; through training, public education, and advocacy; and through the development of innovative tools for protecting historic landscapes.

The OCR staff provides expertise, technical assistance, and project management skills in landscape preservation, historic preservation planning, archaeology, archival records management, and compliance with local, state and federal historic preservation laws. In addition to leading OCR initiatives and programs, OCR staff directly support activities undertaken by other bureaus and divisions within DCR.

III. Implementation

The Commissioner shall designate a staff person to coordinate agency implementation of this policy.

The Commissioner shall ensure that an archaeologist is on staff who meets the professional qualifications and standards for investigation and reporting as outlined in 950 CMR 70.00 and retains DCR's state permit for archaeological investigations on public lands or lands in which the Commonwealth has an interest.

The agency shall provide training on all aspects of this policy to DCR planning, engineering, project management and operations staff.

IV. Regulatory Compliance—Project Planning

During the project planning process DCR shall comply with historic preservation laws at the local, state, and federal levels, listed below. OCR serves as the Department's liaison with local historic district commissions and the Massachusetts Historical Commission (MHC) pertaining to project notifications and requests requiring assistance from and consultation with these commissions. All inquiries from MHC shall be directed to OCR.

A. Local Landmarks and Historic Districts

Many municipalities within the Commonwealth have designated local historic landmarks and historic districts to protect the distinctive characteristics of important sites and districts and to encourage new structural designs that are compatible with their historic setting. Local Historic District Commissions review all applications for exterior changes to landmarks or properties within local districts to ensure that changes to properties will not detract from their historic character. Review criteria are determined by each municipality.

MGL Ch. 40C <http://www.mass.gov/legis/laws/mgl/gl-40c-toc.htm>

B. State Register Review

DCR must notify MHC, through filing of a Project Notification Form (PNF) or Environmental Notification Form (ENF), of any projects undertaken, funded, permitted, or licensed in whole or in part by the agency in order that MHC can make a Determination of Effect of the project on historic and archaeological resources listed in the State Register. DCR shall send copies of PNFs or ENFs to the local historical commissions in those communities that have received Certified Local Government status from MHC. It is the responsibility of the MHC to determine whether State Register properties exist within the project's area of potential impact. When MHC determines a proposed project will have an adverse effect on historic properties, DCR must consult with MHC and any interested parties to explore feasible and prudent alternatives that would eliminate, minimize, or mitigate the adverse effects and, following consultation, adopt such alternatives.

DCR may enter into a Programmatic Memorandum of Agreement (PMOA) with the MHC to streamline the state review process, including identifying possible activities that qualify as categorical exemptions. OCR is responsible for the coordination of any PMOA with the MHC and directly oversees implementation.

MGL Ch. 9, Sec. 26-27C <http://www.mass.gov/legis/laws/mgl/9-27c.htm>
950 CMR 71

C. Massachusetts Environmental Policy Act (MEPA)

Some DCR projects may require filing an ENF with MEPA in addition to the State Register Review. MHC reviews all ENFs and comments on those in which there are concerns that the project has the potential to affect significant historic or archaeological properties. MEPA regulations state that an ENF must be filed if a project involves: 1) demolition of all or any exterior part of any Historic Structure listed in or located in any Historic District listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; or 2) destruction of all or any part of any Archaeological Site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth unless the project is subject to a Determination of No Adverse Effect by MHC or is consistent with a Memorandum of Agreement with MHC that has been the subject of public notice and comment.

301 CMR 11.00 <http://www.mass.gov/envir/mepa/thirdlevelpages/meparegulations/meparegulations.htm>

D. Section 106 Review

DCR is required to comply with Section 106 of the National Historic Preservation Act when undertaking projects that require a permit, funding, license, or approval from a federal agency. The federal agency (or, in many cases, the recipient of federal assistance or permits) is required to notify MHC of such projects and take into account the effects of the project on historic properties that are listed or eligible for listing in the National Register of Historic Places. When the federal agency, in consultation with the MHC as the Office of the State Historic Preservation Officer, determines that a project will result in an adverse effect to those properties, the federal agency must take prudent and feasible measures to avoid, minimize, or mitigate those effects. Other interested parties such as local historical commissions or Indian Tribes are also consulted as part of the process.

16 USC 470 et seq <http://www.cr.nps.gov/local-law/nhpa1966.htm>
36 CFR 800 <http://www.achp.gov/regs-rev04.pdf>

V. Regulatory Compliance—Other (See also Emergency Scenarios/Procedures below)

Other DCR activities require compliance with additional state historic preservation laws:

A. Massachusetts Unmarked Burial Law

When human skeletal remains are discovered or if human remains are disturbed through construction or agricultural activity, DCR staff must immediately notify the Office of the Chief Medical Examiner (617-267-6767, ext. 176). The Medical Examiner shall conduct an inquiry to determine whether the remains are suspected of being 100 years old or more, and, if so determined, shall immediately notify the State Archaeologist at MHC. The State Archaeologist conducts an investigation to determine if the skeletal remains are Native American. If the remains are deemed likely to be Native American, the State Archaeologist shall immediately notify the Massachusetts Commission on Indian Affairs, which shall cause a site evaluation to be made to determine if the place where the remains were found is a Native American burial site. Consultation occurs to develop a written agreement to preserve the burials in situ or, if no other feasible alternative exists, to excavate the burials.

MGL Ch. 38, Sec. 6	http://www.mass.gov/legis/laws/mgl/38-6.htm
MGL Ch. 9, Sec. 26A and 27C	http://www.mass.gov/legis/laws/mgl/9-26a.htm
	http://www.mass.gov/legis/laws/mgl/9-27a.htm
MGL Ch. 7, Sec. 38A	http://www.mass.gov/legis/laws/mgl/7-38a.htm

B. Preservation Restrictions

When DCR seeks to acquire a preservation restriction on a property, MHC must review and approve the language of the restriction before it is finalized. A preservation restriction means a right, whether or not stated in the form of a restriction, easement, covenant or condition, in any deed, will or other instrument executed by or on behalf of the owner of the land or in any order of taking, appropriate to preservation of a structure or site historically significant for its architecture, archaeology or associations, to forbid or limit any or all (a) alterations in exterior or interior features of the structure, (b) changes in appearance or condition of the site, (c) uses not historically appropriate, (d) archaeological field investigation without a permit, or (e) other acts or uses detrimental to appropriate preservation of the structure or site. Certain projects on properties with a preservation restriction require MHC approval.

MGL Ch. 184, Sec. 31-33	http://www.mass.gov/legis/laws/mgl/184-31.htm
	http://www.mass.gov/legis/laws/mgl/184-32.htm
	http://www.mass.gov/legis/laws/mgl/184-33.htm

C. Consultation with Massachusetts Native Americans

DCR must consult directly with Wampanoag (Gay Head and Mashpee) Tribal Councils and the Massachusetts Commission on Indian Affairs (MCIA) for management of the reservation in the Fall River-Freetown State Forest. DCR must consult with the Wampanoag and Nipmuc Tribal Councils on matters affecting each of those tribes. DCR must consult with the MCIA and with other tribal and intertribal councils on matters that affect all other tribes.

Executive Order 126	http://www.lawlib.state.ma.us/ExecOrders/eo126.txt
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VI. Resource Management and Planning

A. OCR Program of Inventory and Evaluation

One of the primary objectives of OCR is to provide an ongoing program of inventory and evaluation of cultural resources on DCR property. This first and most critical step in cultural resource management entails identifying potentially significant cultural resources and discovering the significance or meaning of each resource within a local, statewide, and national context. To this end, OCR shall develop, maintain and oversee the use of its own statewide baseline inventory of cultural resources, known as the Cultural Resources Inventory (CRI). Information from the CRI shall be available for use by DCR staff, but it shall not be made available to the public without approval from the OCR Director, and particularly, the written approval of the State Archaeologist for requests of disclosure of archaeological site locations.

In order to recognize highly significant cultural resources, OCR shall identify those that appear to meet the criteria for the National Register of Historic Places and, in consultation with MHC, nominate them for listing on the National Register. OCR shall initiate and manage the nomination process in consultation with other DCR staff and the MHC.

OCR shall expand and update the CRI as necessary to supplement historical background and geographical information on currently inventoried cultural resources, add newly discovered cultural resources, and update baseline information on cultural resources on properties acquired or disposed by DCR, and provide information on newly inventoried cultural resources to the MHC to coordinate with MHC's Inventory of Historic and Archaeological Assets of the Commonwealth.

The CRI shall also be supplemented with other cultural resource-oriented data and publications, such as MHC inventory forms, historic structure reports, condition assessments, interpretive materials, maintenance/repair records, and archaeological impact studies.

OCR shall provide CRI information to district, regional and facility supervisors with the understanding that archaeological site locational information is confidential, not a "public record," and must be secured from inadvertent or unauthorized disclosure or from subsequent disclosure without written permission of the State Archaeologist (MGL Ch. 9, Sec 26A and 27C (950 CMR 70.13(7))). The CRI shall be used by DCR to enable informed preservation decisions as part of DCR's resource planning and management activities, including the prioritization of capital projects for stabilization, repair and adaptive reuse.

B. Procedures for Protecting Cultural Resources

1. Acquisition of Land and Conservation/Preservation Restrictions

OCR staff shall sit on the DCR Lands Committee and provide assistance and input into the protection of properties of significance to the state's cultural heritage through acquisition in fee, conservation restrictions, or preservation restrictions. Once an acquisition is complete, the OCR shall determine whether a baseline inventory should be undertaken on the property to identify cultural resources. Preservation restrictions must be reviewed and approved by MHC prior to DCR acquisition.

2. Resource Management Plan Development

OCR staff shall provide technical support toward the Resource Management Planning Program to insure that the protection of cultural resources is a core component of Resource Management Plans. Depending on the type of DCR facility and the scope of the RMP, this support may range from data collection and documentation to property analysis and treatment recommendations.

3. Project Planning

DCR shall make every effort to protect cultural resources on DCR property. For projects planned at any Department level, appropriate Department staff shall consult with OCR to consider potential project impacts on cultural resources. Consultation with OCR shall occur as early as possible in the planning process, but no later than the 25% design development phase. When a conflict between a project location and its impact on cultural resources is identified, cultural resource management strategies shall be brought into consideration to determine if the impact to the resource can be avoided, adverse impacts mitigated, or whether additional site investigation is necessary. OCR shall initiate and manage those activities that will minimize or mitigate adverse impacts to cultural resources.

When necessary, OCR shall conduct a coordinated program of basic and applied research to support planning for and management of cultural resources on DCR property. Repairs, rehabilitation, and other preservation activities shall follow the guidelines in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. Adequate research to support planning and compliance with MHC Review will precede any final decisions about the treatment of cultural resources or operational activities which may impact cultural resources.

For each DCR project, a Project Notification Form (PNF), including a project description, a site plan, and photographs, shall be provided to OCR. OCR shall forward the PNF to MHC and, where required, local historic district commissions. If outside consultants are preparing the PNF, then OCR staff shall be given an opportunity to review the draft PNF before it is submitted. The submission of an Environmental Notification Form (ENF) under the Massachusetts Environmental Policy Act (MEPA) satisfies MHC notification, and no PNF is needed for project undergoing MEPA review. Copies of ENFs shall be provided to OCR.

MHC has a maximum of 30 days to make a Determination of Effect on historic resources or request supplemental information in order to make a Determination of Effect. In the event that the MHC makes a determination of “no effect” or “no adverse effect” on historic resources, the project may proceed. If MHC determines that the proposed project will have an “adverse effect” on historic resources, DCR shall consult with MHC to explore options to avoid, minimize, or mitigate the adverse effect. If, after consultation, no feasible or prudent alternative exists that would avoid the adverse effect, a Memorandum of Agreement between DCR, MHC and any other interested parties is required to resolve the adverse effect and complete the consultation process.

Local historic district commission review will vary by municipality.

No physical work for projects shall occur until the review process has been completed with MHC and (if applicable) the local historic district commission.

4. Emergency Scenarios/Procedures

In the event an unanticipated site of archaeological or cultural significance is encountered during the project implementation stage, project work shall be halted and OCR shall be notified. OCR shall initiate the review process with MHC and make a recommendation to the Deputy Commissioner of Planning & Engineering whether or not to suspend all aspects of project implementation during consultation with MHC.

If human remains are discovered during project implementation, project work shall be halted, the area must be secured, the State Police must be notified, and the Medical Examiner (617-267-6767 ext, 176) and the DCR staff archaeologist must be contacted to determine if the remains are over 100 years old. No one should touch or remove the remains. If the remains are over 100 years old, the State Archaeologist at MHC must be notified and will consult with DCR (and the Massachusetts Commission on Indian Affairs if the remains are Native American) to avoid or mitigate impacts to the graves. In any such situation, DCR staff shall work with OCR to comply with the state's Unmarked Burial Law.

If DCR must take immediate action to avoid or eliminate an imminent threat to public health or safety or a serious and immediate threat to the environment, OCR shall be notified as soon as possible. OCR shall attempt to seek prior oral approval of the MHC for the project via telephone if written notice is not practicable, provide written notification of the emergency work within ten days, and commence full compliance with MHC review requirements within thirty days, under the terms of 950 CMR 71.10.

5. Day-to-Day Operations

Management of DCR's property shall be carried out with cultural resource protection in mind. Adverse impacts to cultural resources should be avoided and mitigated, where possible, with appropriate protection strategies. Cultural resources shall be adequately maintained, following recommended techniques where formal guidelines are in place. Cultural resource management decisions should be made with input from OCR.

Discovery of artifacts should be reported immediately to OCR, noting the exact location of the find. Be aware of sites that may be exposed or threatened by erosion or visitor impacts. Any vandalism, unauthorized digging, or removal of artifacts should be reported to the appropriate law enforcement personnel and OCR. Archaeological investigations on public lands require a permit from the State Archaeologist at MHC (MGL Ch. 9, Sec 26A and 27C (950 CMR 70)).

6. Lease/Permit Programs

The issuance of leases and permits by DCR for activities involving the physical alteration of a property must undergo MHC review with OCR and MHC, as outlined above.

The proposed issuance of DCR permits to investigate archaeological sites shall be reviewed by OCR. OCR shall coordinate the issuance of a special use permit with the State Archaeologist at MHC, who must also issue a concurrent State Archaeologist permit for any field investigations on DCR property (MGL Ch. 9, Sec 26A and 27C (950 CMR 70)).

7. Disposition of Real Property

The protection of cultural resources, including the preservation and continued use of significant historic buildings and structures, shall be accommodated as part of any disposition of DCR property. Under the State Register review regulations (950 CMR 71.05(e)), the transfer or sale of a State Register property without adequate conditions or restrictions regarding preservation, maintenance, or use will result in an “adverse effect” determination from MHC. DCR must consult with MHC and any interested parties to resolve the effect of the proposed transfer or sale of the State Register property.

Appendix H. GIS Supplemental Information.

H.1. METHODOLOGY

The following is a summary of the GIS methodologies used by the Department of Conservation and Recreation (DCR) GIS Program to generate and present data within the Blue Hills Complex Resource Management Plan (RMP).

Property Boundaries

The digital boundaries for each property within the Blue Hills Complex can be described, based on source data, one of three ways: highly accurate, reasonably accurate (for planning purposes), and accuracy undetermined. Approximately 28%, by length, of the digital boundaries are based on highly accurate data, such as survey plans or physical features like hydrography. About 29%, by length, are based on reasonably accurate data, such as digital assessor parcel data and half-meter-resolution orthoimagery. The remaining 43%, by length, are based on more historical data of undetermined accuracy, such as US Geological Survey (USGS) topographic quadrangles, sketches, sources without quality data, or undocumented sources.

As part of the planning process, DCR GIS specialists edited the digital boundaries of several properties in this RMP. This included:

- Blue Hills Reservation. Ponkapoag Golf Course, which is no longer operationally in the Blue Hills District, was removed from within the Blue Hills Reservation's boundaries.
- Cutler Park Reservation. Adding a portion of the Charles River Reservation in Needham, between Great Plain Avenue and the Charles River by heads-up digitizing from a MassDOT highway layout plan.
- Wilson Mountain Reservation. Adjusting the eastern boundary, adjacent to the Solomon Track, orthoimage interpretation based on a new land survey.
- Neponset River Reservation. The portion of Fowl Meadow within the City of Boston, and the parking/boat launch area at the intersection of the Neponset Valley Parkway and Brush Hill Road, were added to the Blue Hills Complex using existing open space data.

- Franklin State Forest. During the preparation of this RMP, operational responsibility for the Southern New England Trunkline Trail (SNETT) was placed entirely within the Blackstone Complex. Boundaries of the SNETT as it passes through Franklin State Forest were corrected, resulting in minor changes to the forest's boundaries.
- Wrentham State Forest. The Route 495 corridor, as identified from the highway layout survey, was removed from the forest.
- Bridgewater State Forest. The boundary was redrawn, based on assessor's information, so that the mapped parcel fronted Water Street.

In addition, new roads or roads involved in management zoning that had not been digitized were digitized.

Land Stewardship Zoning

A DCR GIS Specialist digitized the Zone 1, Zone 2, Zone 3, and Significant Feature Overlay areas in ArcGIS. Every attempt was made to use "on the ground features," such as trails or streams, and dimensional offsets (i.e., buffers) or straight line connections as the boundary for each zone and/or Significant Feature Overlay in an effort to make the areas easily identifiable for DCR field staff.

Blue Hills Reservation - Zoning in this RMP is largely based on that presented in the previous Blue Hills RMP (DCR 2011). Changes in zoning were made to reflect recent changes in operations or on the ground conditions; they are described below.

- Little Blue Hill. The Zone 3 on Royall Street is set back 200 feet from the Skyline Trail.
- Unquity. The Zone 3 for Ulin Rink follows the MassGIS wetland line on the north, west, and part of the south side.
- Chickatawbut. The Chickatawbut Overlook, towers, and education center zones follow trails and fences where they exist, to encompass developed areas. The boundary runs north from the west side trailhead, through three trail intersections, thence east 145 feet, thence south 370 feet (level distances) by a large pine tree to the northeast corner of the parking lot, which is

the northeast corner of the "Tower Zone 3", thence back to the starting point, all to enclose an area maintained as field to preserve the view toward Boston. The tower zone includes the parking lot, and the boundary runs from the southwest corner of the vista zone along the south edge of the vista zone to the southeast corner of the vista zone, thence south crossing the road and through three trail intersections, turning west-northwest and through a trail stream crossing, a forest road culvert, and turning generally more north and through two trail intersections to the gate by the road, thence across the road to the trailhead at the starting point.

- St. Moritz. The Zone 3 west of Shea Rink extends west-southwest from the west corner of the rink lot fence to the south end of a clearing to include a wooded area between the rink, the Sergeant Robert Allen Curry Ball Field, and a dam/dike associated with the St. Moritz Ponds. The Zone 3 for the playground on the south side of Bunker Hill Lane is the MassGIS assessor lot.
- Quincy Quarries. The Quincy Quarries Zone 3 encompasses the developed area and enclosed wooded areas.
- Ponkapoag. The Zone 1 boundary follows trails/forest roads where they exist and is intended to exclude the developed golf course areas and the dam/dike at the outlet of Ponkapoag Pond. All zones that include dams/dikes intend to approximate the dam/dike construction and spillway areas including overgrown areas and underwater construction. The Homan Conservation Restriction boundary was digitized from best fit of tree lines/Ponkapoag Golf Course fairways and stone walls depicted on the Town of Canton topographic survey superimposed on orthoimagery. The Zone 3 for Fisherman's Beach includes the parking area; it does not include the beach area or road frontage. It is set back approximately twenty feet from the road, to the parking lot guardrail. It then follows the guardrail on the east edge of the lot, and extends in a straight line to Acton Path. The north end of this zone extends from this point, passes north of the north gate, almost due west to the corner of the Reservation where the property line begins an arc, which encloses a rectangular trapezoid

shape. The AMC Ponkapoag Camp's Zone 3 encompasses the developed area including shoreline and tent sites, with the south edge a line from the northern prominent rock of three on the shore almost due east to a point on the AMC access road 315 feet north of a culvert and 275 feet southeast of an intersection at the camp, to bound the tent area. The YMCA's Ponkapoag Outdoor Center's Zone 3 approximates the floating mat of the bog. Its northwest edge is three straight lines from the north point of the zone to an eastern point of the golf course planning area, which excludes some upland to the northwest.

- Ponkapoag East. The Zone 3 for the Nike Battery BO-55 Launcher Area encompasses the fenced areas, and the existing zoned area south of the access road where fence may no longer exist.

Additional information on the Blue Hills Reservation's zoning is presented in Section 2.9.

Cutler Park Reservation - The Zone 3 south of Great Plain Avenue includes the gated access road and an approximately 20-foot offset on the north side for potential head-in parking up to the west entrance of a loop driveway to the south, and all land to the river, including the loop driveway, for the potential future development of river access.

Additional information on Cutler Park Reservation's zoning is presented in Section 3.9.

Wilson Mountain Reservation - The eastern boundary of the Zone 3 extends to the actual boundary of the property as determined by a survey conducted for DCR. A planted line of trees is offset approximately five feet from the surveyed property line. Because of this, the eastern boundary of the Zone 3 was also set to five feet from the row of trees.

Additional information on Wilson Mountain Reservation's zoning is presented in Section 4.9.

Neponset River Reservation - The Zone 3 by Paul's Bridge includes all developed areas, including those that may at times be overgrown. The Zone 3 at Farnham & Connolly does not include the surrounding ecological restoration areas.

Additional information on the Neponset River Reservation's zoning is presented in Section 5.9.

F. Gilbert Hills State Forest - The Zone 3 along Granite Street was created from coordinate geometry, where it exists, and from best fit using orthoimagery and oblique imagery, based on the survey describing the lease for that area. The best-fit is along the dam area including estimated underwater structures, and along the waterfront near the Barton House. The zone includes that portion of the road/layout on forest property. The northwest end of the Zone 3 at the forest headquarters is intended to encompass the forested picnic area. The High Rock Zone 3 encompasses the former radar site. The nearby Warner Trail access parking area and appurtenances on forest property are also Zone 3. The Off-Highway Vehicle (OHV) Significant Feature Overlay in the forest is buffered from approximate GPS trail centerline data; it has been exaggerated to show at map scale and is not intended to include offsite trails and areas not zoned for OHV access. It is intended to only illustrate approved trail loops.

Additional information on F. Gilbert Hills State Forest's zoning is presented in Section 6.9.

Bristol Blake State Reservation - The Zone 3 includes all cleared and built areas, and approximates the dam/dike construction and spillway areas including overgrown areas and underwater construction.

Additional information on Bristol Blake State Reservation's zoning is presented in Section 7.9.

Franklin State Forest - The Zone 3 on the south side of Forge Hill Road is a schematic for a potential head-in parking lot. The OHV Significant Feature Overlay in the forest is buffered from approximate GPS trail centerline data; it has been exaggerated to show at map scale and is not intended to include offsite trails and areas not zoned for OHV access. It is intended to only illustrate approved trail loops.

Additional information on Franklin State Forest's zoning is presented in Section 8.9.

Wrentham State Forest - The Zone 3 on the west side of Madison Street at a trailhead is a schematic for a potential head-in parking lot. The OHV Significant Feature Overlay in the forest is buffered from approximate GPS trail centerline data; it has been exaggerated to show at map scale and is not intended to include offsite trails and areas not zoned

for OHV access. It is intended to only illustrate approved trail loops.

Additional information on Wrentham State Forest's zoning is presented in Section 9.9.

Rehoboth State Forest - Zoning was set to the forest boundaries.

Additional information on Rehoboth State Forest's zoning is presented in Section 10.9.

West Bridgewater State Forest - The Zone 3 includes all cleared and all built areas at the site that are on forest land, and approximates the dam/dike construction and spillway areas including overgrown areas and underwater construction.

Additional information on Bridgewater State Forest State Reservation's zoning is presented in Section 11.9.

Bridgewater State Forest - Zoning was set to the forest boundaries.

Additional information on Bridgewater State Forest State Reservation's zoning is presented in Section 12.9.

Borderland State Park - The Zone 3 at the main entrance and the mansion includes all cleared and all developed areas except south of the line of the fieldstone wall south of the built trout pond wetland, and the area of revegetation east of the south end of the zone. It included the wooded picnic area south of the visitor center bordered by the two trails to the former hunting lodge on Leach Pond. All Zone 3 areas that include dams/dikes are intended to include the approximate construction area for their maintenance, including areas that may at times be overgrown or are under water. The Significant Feature Overlay is based on information in the Ames Mansion landscape rehabilitation plan (DCR 2011c).

Additional information on Borderland State Park's zoning is presented in Section 13.9.

H.2. MASSGIS DATALAYERS

A summary of the MassGIS datalayers used by the DCR GIS Program to generate and display data within the Blue Hills Complex RMP is presented in Table H.1.

Table H.1. Summary of MassGIS datalayers used to create the Blue Hills Complex RMP.^a

Datalayer Name	Additional Information
1:5,000 Black and White Digital Orthophoto Images (1990s)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/oqdesc.html
1:5,000 Color Ortho Imagery (2001, 2003)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/colororthos2001.html
1:5,000 Color Ortho Imagery (2005)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/colororthos2005.html
Areas of Critical Environmental Concern	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/acecs.html
Community Boundaries from Survey Points	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/townsurvey.html
DCR Roads and Trails	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/dcrtrails.html
EPA Designated Sole Source Aquifers	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/epa-designated-sole-source-aquifers-.html
FEMA National Flood Hazard Layer	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/nfhl.html
Land Use (2005)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/lus2005.html
Major Watersheds	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/watrshds.html
Massachusetts House Legislative Districts (2012)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/house2012.html
Massachusetts Senate Legislative Districts (2012)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/senate2012.html
MassDEP Hydrography (1:25,000)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/hd.html
MassDEP Wetlands (1:12,000)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/depwetlands112000.html
MassDOT Roads	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/eotroads.html
NHESP Certified Vernal Pools	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/cvp.html
NHESP Potential Vernal Pools	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/pvp.html
NHESP Priority Habitats of Rare Species	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/prihab.html
Outstanding Resource Waters	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/orw.html
Protected and Recreational OpenSpace	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/osp.html
USGS Color Ortho Imagery (2008/2009)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/colororthos2008.html
USGS Color Ortho Imagery (2013/2014)	http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/colororthos2013.html

a. Additional datalayers from the Massachusetts Historical Commission (MHC; via <http://maps.mhc-macris.net> and DCR GIS Program were referenced as part of the creation of this RMP.

Appendix I. Management Recommendations for the Blue Hills Planning Unit, as Identified in the 2011 Resource Management Plan (DCR 2011).

A Resource Management Plan for the Blue Hills Planning Unit was approved by the DCR Stewardship Council in 2011. This RMP included 207 management recommendations organized by section of the Reservation (e.g., Great Blue Hill) and management goal. Table I.1 identifies these recommendations and indicates the status of their implementation. Recommendations not implemented, but meeting current prioritization criteria, are included in Table 2.9.1.

Table I.1. Management Recommendations for the Blue Hills Planning Unit, as identified in DCR (2011).

Recommendation ^a	Section of Reservation ^b	Implemented? ^c
Decrease the seasonal mountain bike exclusion to the month of March.	RW	Y
Develop and implement an educational program to discourage all trail users during mud season.	RW	N
Reduce trail user conflicts by: developing and distributing trail etiquette literature; posting trail etiquette “Yield” signs at kiosks, bulletin boards, and key locations along trails; revising future trail maps to include information on trail etiquette; and working with the DCR Mounted Unit and partners to offer training in trail etiquette.	RW	N
Prepare a Trail System Plan to include those issues not specifically addressed in this RMP, such as trail creation or closure, management of closed trails, and the potential relocation of trails near vernal pools, and ongoing mapping needs.	RW	N
Gather additional demographic information on visitors to the Blue Hills in order to identify the diversity of park users, and to ensure that programming, facilities, and infrastructure are fully available to all.	RW	N
Develop a Habitat Management Plan for trail work so that trail maintenance and repair may be performed on a reservation-wide basis, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a).	RW	Y
Promote responsible pet ownership by increasing awareness of requirements to keep pets leashed and to pick up and properly dispose of pet waste.	RW	N
Create a Recreation Facility Repairer position.	RW	N
Partner with non-profit organizations to identify opportunities to obtain grants to improve and expand resource management, recreational, and educational opportunities on the reservation.	RW	N
Work with MassDOT to install Supplemental Guide signs on I-93 to direct vehicle traffic to enter the park via Exit 2 (Route 138).	RW	N
Continue to encourage all lessees to pursue environmentally sustainable practices consistent with their programming and activities.	RW	N
Increase awareness among winter trail users of the need to stay off ski tracks in order to allow for ongoing use by cross-country skiers.	RW	N
Fill Forest and Park Supervisor II position to provide for natural resources management.	RW	N
Work with the Massachusetts Division of Fisheries and Wildlife to conduct a study of white-tailed deer populations within the Blue Hills Reservation and to ascertain the extent of their impacts on the reservation’s natural resources; if warranted, discuss deer management options.	RW	Y
Prepare a comprehensive Vegetation Management Plan (VMP) to address vegetation management in Priority Habitat, the maintenance of allées and historic landscapes, monitoring and control of invasive species, mowing cultural grasslands, and the maintenance of turf and ornamental plants.	RW	N
Keep species and natural community information up to date.	RW	N
Increase staff awareness of regulations affecting park operations, such as the Wetlands Protection Act and Massachusetts Endangered Species Act, and enhance the protection of natural resources through participation in training offered by the DCR’s Bureau of Planning and Resource Protection.	RW	IP
Prohibit the importation of firewood from off the reservation.	RW	Y
Survey the reservation’s remaining uncertified vernal pools, and submit paperwork for those pools with the potential to be certified.	RW	IP

Appendix I. Management Recommendations for the Blue Hills Planning Unit. (Continued)

Recommendation^a	Section of Reservation^b	Implemented?^c
Prepare a comprehensive fire management and response plan that addresses operational responsibilities, public safety, habitat management, impacts to rare species, and the creation and maintenance of associated infrastructure (e.g., fire roads).	RW	IP
Fill the Forestry Assistant position.	RW	N
Survey appropriate habitat for remnant populations of the New England cottontail.	RW	N
Increase staff awareness and protection of cultural resources through participation in workshops and training on topics, such as the monitoring and protection of significant archaeological resources, offered by the DCR's Office of Cultural Resources.	RW	Y
Prepare and submit MHC Archaeological Site Forms for sites identified in this plan, but not already included in MHC's inventory.	RW	N
With the exception of public safety needs, limit new development along the reservation's ridgelines to below tree canopy level.	RW	Y
Accurately map parkway culverts, using GPS, to record their locations and existing conditions.	RW	N
Monitor parkway culverts on a bi-annual basis, clearing debris as necessary to maintain functionality and assess necessary repairs.	RW	N
Conduct a reconnaissance archaeological survey, as resources become available.	RW	N
Establish a volunteer project to GPS and photo-document all stone walls within the reservation.	RW	N
Conduct annual summits of the reservation's stakeholders in order to promote an ongoing dialogue among the Regional Director, District Manager, and stakeholders.	RW	N
Promote the Blue Hills as a study site for academic, governmental, non-profit, and other research (e.g., water quality, forest health) in order to meet specific information needs and enhance resource management.	RW	N
Modify Special Use Permit procedures to increase awareness of the need for these permits and to ensure that associated research reports are provided to appropriate park staff and the DCR Archives.	RW	N
Educate the public and local officials with regard to snake biology and protection; as recommended by the NHESP (2007a).	RW	N
Fill the Visitor Services Specialist (sic) position.	RW	Y
Establish quarterly, informal meetings to provide park visitors increased opportunities to meet with park administrators to discuss their concerns.	RW	N
Prepare a comprehensive interpretive plan for the reservation that: increases awareness and appreciation of its Native American history, role in the Quincy granite industry, military heritage, and the contributions of the CCC; and establishes ongoing coordination among interpretive program providers.	RW	N
Increase ranger presence on trails to promote enhanced compliance with trail regulations.	RW	N
Consolidate the three volunteer programs into a single program under the control of the Visitor Services Specialist and employ best management practices (e.g., Brudney 1994, 2005, Hager and Brudney 2004) for recruiting, managing, and tracking hours worked by volunteers.	RW	N
Work with MassDOT, and other transportation planning entities, to reduce through and commuter traffic in the reservation.	RW	N
Work with MassDOT to install "Now Entering Blue Hills Reservation" and "Now Leaving Blue Hills Reservation" signs along routes I-93 and 24 in order to increase awareness of the reservation among drivers passing through.	RW	N
Using new traffic count data, conduct an assessment of pedestrian safety.	RW	N
Conduct annual monitoring of Conservation Restrictions.	RW	N
Work with the Massachusetts State Police to develop a speed enforcement plan.	RW	N
Install "Share the Road" and bicycle vehicular traffic warning signs on internal park roads and parkways to increase driver awareness of the presence of cyclists.	RW	N
Develop a written agreement for the use of the Green Street dressage field.	LB	N
Conduct active habitat management for state-listed rare species; as recommended by the NHESP (2007a).	LB	N
Develop a survey and monitoring program for rare species; as recommended by the NHESP (2007a).	LB	N
Stabilize the partially collapsed segment of the stone paddock.	LB	N

Appendix I. Management Recommendations for the Blue Hills Planning Unit. (Continued)

Recommendation^a	Section of Reservation^b	Implemented?^c
As part of the reservation's Vegetation Management Plan, develop a vista clearing and maintenance protocols for the Hemenway Bench area.	LB	N
The Hemenway Bench should be cleaned by a qualified stone conservator to remove existing lichen.	LB	N
Assess the 25 Royall Street property for potential inclusion in DCR's Historic Curatorship Program.	LB	N
Remove existing fallen limbs, vegetation and saplings that are adjacent to the stone paddock and carefully remove any vegetation within the masonry.	LB	N
Initiate discussions with the MassDOT regarding the potential transfer to the DCR of an approximately two-acre, forested parcel between Fowl Meadow and the Blue Hills.	LB	N
Monitor boundaries for encroachment.	LB	N
Inventory Hemenway Pond's natural resources in order to identify management needs.	HE	N
Work with the Town of Milton and the Milton Historical Commission, and encourage them to actively preserve cultural resources.	HE	N
Vegetation and excess concrete should be carefully removed from the granite pillars and the joints repointed as necessary by a historic masonry expert.	HE	N
Advocate that MassDOT install a left-hand turn lane on Route 138 south for vehicles to enter the Trailside Museum south parking lot. Request that MassDOT perform a safety study and warrant analysis for a left-hand turn lane from Route 138 south into the Trailside Museum south parking lot.	GB	N
Have a structural engineer inspect the foundation of the ski area's main lodge and make recommendations for its maintenance or repair.	GB	N
Request that Ski Blue Hills LLC repair, replace, or remove the shed at the bottom of the beginner's slope.	GB	Y
Work with the ski area operator to ensure that all portions of the ski slopes have an "erosion-protective cover of vegetation."	GB	IP
Modify signs and striping at the Trailside Museum north and south parking lots to ensure compliance with accessible parking requirements.	GB	N
Implement parking lot upgrades as described in the Trailside Museum Master Plan (Pressley Associates 2008).	GB	N
Promote the long-term leasing of the William F. Rogers Ski Area.	GB	N
Add a Gateway sign to the northeast corner of the Route 138 and Blue Hill River Road intersection. Provide Wayfinding Guide signs for the Trailside Museum, Houghton's Pond, and the Regional Office.	GB	N
Work with Ski Blue Hills LLC to pursue a comprehensive approach to environmental sustainability, such as through adoption of the Sustainable Slopes Charter (National Ski Areas Association 2005).	GB	N
Update the study of alternative water supplies for snowmaking at the William F. Rogers Ski Area (Leggette, Brashears & Graham, Inc. 2001).	GB	N/A
Conduct an engineering assessment of the ski area's existing drainage system to determine its condition and ability to control runoff, and to estimate the cost of repair, modification, or replacement.	GB	N
Install a Trailside Museum Wayfinding Guide sign on the north side of Hillside Street, opposite the exit of the Houghton's Pond main parking lot.	GB	N
Explore assigning the cost of maintaining Summit Road, on a proportional basis, to the tenants atop Great Blue Hill.	GB	N
Implement recommendations identified in the Blue Hills Pond Watershed Management Plan (Baystate Environmental Consultants, Inc. 2006).	GB	N
Conduct active habitat management for state-listed rare species; as recommended by the NHESP (2007a).	GB	N
Restore examples of the Ridgeway Pitch Pine-Scrub Oak community type on Houghton and Hemenway hills.	GB	N
Manage trails, recreation, landscaping, roads, and construction relative to rare plants, insects, and natural communities; as recommended by the NHESP (2007a).	GB	N
Develop a survey and monitoring program for rare species; as recommended by the NHESP (2007a).	GB	N
Plan landscaping, maintenance, and construction to avoid impacts to rare snakes; as recommended by the NHESP (2007a).	GB	IP
Remove graffiti from the Great Blue Hill Observation Tower, Eliot Pavilion and the Eliot Memorial Bridge.	GB	N
Replace the Great Blue Hill Observation Tower and Eliot Pavilion's roof and repair damaged masonry.	GB	N
Repair soffit damage on the ski area's compressor building and garage.	GB	N

Appendix I. Management Recommendations for the Blue Hills Planning Unit. (Continued)

Recommendation ^a	Section of Reservation ^b	Implemented? ^c
Repair masonry damage to the Eliot Memorial Bridge and replicate the two missing plaques.	GB	N
Restore historic views from the Eliot Memorial Bridge and Eliot Tower without negatively affecting state-listed species or promoting invasive plants. This recommendation may be implemented in advance of the Vegetation Management Plan.	GB	N
Repair masonry damage to the shed at the weather observatory.	GB	N
Research the historic significance of structures at the William F. Rogers Ski Area.	GB	N
Replace the Great Blue Hill pump house roof's sheathing and shingles.	GB	N
Establish a long-term agreement with Mass Audubon for the operation of the Trailside Museum and Norman Smith Environmental Education Center.	GB	N
Strategize with the Massachusetts Audubon Society on ways to implement the Trailside Museum Master Plan (Pressley Associates 2008).	GB	N
Provide Trail Watch, or other trained volunteers, at the Eliot Pavilion on busy weekends to answer questions and promote enhanced compliance with trail regulations.	GB	N
Create a Forest and Park Supervisor I position to provide dedicated on-site support to the Trailside Museum.	GB	N
Work with MassDOT to improve pedestrian safety along Route 138.	GB	N
Establish a functioning complex of historic and non-historic buildings at the Brookwood Farm entrance by: continuing the existing relationship with the North Bennet Street School; reconstructing the historic barn; stabilizing and initializing rehabilitation of the Gate Keeper's Cottage; and constructing a new park operations barn.	BF	Y
Solicit a curator, through the Historic Curatorship Program, for the Gate Keeper's Cottage.	BF	N
Promote partnerships that help preserve the cultural resources and historic uses of Brookwood Farm.	BF	N
As part of the reservation's Vegetation Management Plan, manage the sugar maple allée to preserve this historic landscape feature.	BF	N
Correct the deed (Book 6600, Page 479) for the portion of Brookwood Farm near Carisbrooke Road, Milton, to exclude a third, 0.46+/- acre parcel. This parcel is identified as "Lot A" in Book 4642, page 524 of the Norfolk County Registry of Deeds.	BF	N
Construct a replacement for the William J. Scannell Bath House.	HP	Y
Make a portion of Picnic Site 4 accessible by installing accessible grills and picnic tables, and creating a hardened path to nearby accessible parking.	HP	N
Modify signs and striping at the main and Site 5 parking lots to ensure compliance with accessible parking requirements.	HP	P
Decrease the amount of litter in the Houghton's Pond parking lots by establishing an anti-littering awareness campaign, providing additional compacting trash receptacles, and revisiting the timing of existing litter management activities.	HP	N
Create a Forest and Park Supervisor I position to provide support for managing Houghton's Pond.	HP	Y
Improve the fishing access area on the west side of Houghton's Pond to eliminate erosion and restore the vegetated buffer.	HP	N
Establish a safe pedestrian connection between Houghton's Pond and Brookwood Farm by improving the intersection of Hillside Street and Blue Hill River Road in Milton.	HP	N
Provide bike parking.	HP	N
Create a universally accessible fishing platform on the southeast shore of Houghton's Pond.	HP	N
Establish an accessible path from parking area to the picnic Site 5.	HP	N
Review the Massachusetts National Guard's contingency plans to use the Houghton's Pond ball fields; revoke or modify the 40-year-old permit, as necessary.	HP	N
Stencil catch-basins to indicate "Do not dump. Drains to Houghton's Pond," in accordance with the DCR Storm Water Management Plan (DCR 2007b).	HP	N
Reset the granite steps on new bases.	HP	N
Stabilize the water fountain feature.	HP	N
Work with MassDOT to explore bicycle accommodations on the Ponkapoag Trail Bridge.	HP	N/A
Designate and operate a portion of the Regional Office as the reservation's primary contact station and direct visitors to this location. [Note: The Captain's House is no longer the Regional Office.]	HQ	N
Prepare a universal access renovation plan for the contact station and associated visitor parking at the Regional Office. [Note: The Captain's House is no longer the Regional Office.]	HQ	N

Appendix I. Management Recommendations for the Blue Hills Planning Unit. (Continued)

Recommendation ^a	Section of Reservation ^b	Implemented? ^c
Develop approximately 300 feet of trail, between the southern terminus of Wolcott Path and the Hillside Street crosswalk, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a).	HQ	N
Upgrade the Hillside Street crosswalk in front of the Brian T. Broderick Stables.	HQ	Y
Install Wayfinding Guide signs on the south side of Hillside Street, to direct visitors into the Regional Office's drive and short-term parking.	HQ	N
Provide bike parking.	HQ	N
Install a Wayfinding Guide sign on the south side of Hillside Street so that visitors leaving the Regional Office are directed to the Trailside Museum.	HQ	N
Investigate the potential septic system connection at the Police Station.	HQ	N
Identify and implement temporary structural stabilization measures for the Brian T. Broderick Stables.	HQ	Y
Pursue historic curatorship for the Brian T. Broderick Stables.	HQ	N/A
Update the 2004 (DCAM 2004) renovation plan for the Brian T. Broderick Stables, to reflect new reuse assumptions.	HQ	N
Repair the structural damage to the salt shed.	OP	Y
Assess the masonry damage on the maintenance garage and Repair Shop #1 to determine the cause and identify repair needs.	OP	N
Modify signs and striping at the Ulin Rink parking lot to ensure compliance with accessible parking requirements.	UN	N
Upgrade the Ulin Rink sign to reflect that it now operates under a lease agreement.	UN	N
Evaluate locations of trails relative to the dens of state-listed snakes and reroute or close trail segments, as necessary, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a).	BH	N
Request that MassDOT install "Trail Crossing" signs and distance plaques at the intersection of Route 28 and the Skyline Trail.	BH	Y
Add the gravel parking lots along Route 28 to DCR's surface improvement schedule.	BH	N
Maintain the current physical extent of the Ridgetop Pitch Pine-Scrub Oak community type on Buck Hill and restore this community on Tucker Hill. Provide for scenic vistas on those hilltops where there is no potential for conflict with state-listed snakes.	BH	N
Conduct annual monitoring of stonework at the Bugbee Path cellar hole and carefully perform routine vegetation removal.	BH	N
Complete the mothballing of the Randolph Avenue Stable by ensuring that all openings are properly sealed and there is adequate ventilation.	BH	N
Conduct a structural and needs assessment and explore potential future reuse options for the Randolph Avenue Stable.	BH	N
Require that Trail Watch members operating in this section receive training in snake biology and conservation, and submit Rare Species Observation Forms to NHESP for all rare snakes observed.	CH	Y
Evaluate locations of trails relative to the dens of state-listed snakes and reroute or close trail segments, as necessary, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a).	CH	P
Install Wayfinding Guide signs at the intersection of Chickatawbut Road and Route 28.	CH	N
Request that MassDOT install "Trail Crossing" signs and distance plaques at the intersection of Route 28 and the Skyline Trail.	CH	N
Create universally accessible parking and picnic facilities on the north side of the Chickatawbut Overlook parking area.	CH	N
Improve the crosswalk at the Chickatawbut Overlook.	CH	N
Provide bike parking.	CH	N
Plan landscaping, maintenance, and construction to avoid impacts to rare snakes; as recommended by the NHESP (2007a).	CH	N
Exclude all non-emergency vehicles, except in exigent situations, and non-utility company motor vehicles from trails in rare snake habitat east of Route 28.	CH	N
Reinstitute seasonal nighttime closings of Chickatawbut Road, east of Route 28, and Wampatuck Road; as recommended by the NHESP (2007a).	CH	N
Conduct active habitat management for state-listed rare species; as recommended by the NHESP (2007a).	CH	N
Manage trails, recreation, landscaping, roads, and construction relative to rare plants, insects, and natural communities; as recommended by the NHESP (2007a).	CH	N

Appendix I. Management Recommendations for the Blue Hills Planning Unit. (Continued)

Recommendation ^a	Section of Reservation ^b	Implemented? ^c
Maintain the current physical extent of the Ridgetop Pitch Pine–Scrub Oak community type on Chickatawbut, Fenno, Kitchamakin, Wampatuck, and Rattlesnake hills. Provide for scenic vistas on those hilltops where there is no potential for conflict with state-listed snakes.	CH	N
Develop a survey and monitoring program for rare species, as recommended by the NHESP (2007a).	CH	N
Create and monitor turtle nesting habitat; as recommended by the NHESP (2007a).	CH	N
Develop and implement vista clearing protocols for the Chickatawbut Overlook viewshed. This recommendation may be implemented in advance of the VMP.	CH	N
Develop and implement vegetation maintenance protocols for the Chickatawbut Observation Tower, Chickatawbut Pavilion, and picnic area. This recommendation may be implemented in advance of the VMP.	CH	N
Remove graffiti from the Chickatawbut Observation Tower and Chickatawbut Pavilion.	CH	N
Investigate permanently closing the portion of Chickatawbut Road between the intersection with Wampatuck Road and the entrance to the Pine Hill Cemetery.	CH	N
Conduct annual monitoring of the stonework of the Glover site’s cellar hole and carefully perform routine vegetation removal following guidance provided by the Office of Cultural Resources.	CH	N
Require that Trail Watch members operating in this section receive training in snake biology and conservation, and submit Rare Species Observation Forms to NHESP for all rare snakes observed.	QQ	Y
Revise signs at the Granite Rail Quarry compressor house to indicate that rock climbing access is available on Ricciuti Drive and not permitted at this location.	QQ	N
In association with the City of Quincy, remove the wooden shed from the northwest parking lot of the Quincy Youth Baseball facility along Ricciuti Drive.	QQ	N
Post signs at the DCR’s Quincy Quarries parking lot indicating that additional parking and quarry access are available at the Quincy Youth Baseball parking lots.	QQ	N
Implement remaining mitigation measures for the draining of the Quincy Quarries and dedicate any remaining funds for site improvement.	QQ	Y
Exclude all non-emergency vehicles, except in exigent situations, and non-utility company motor vehicles from trails in rare snake habitat east of Route 28.	QQ	N
Plan landscaping, maintenance, and construction to avoid impacts to rare snakes; as recommended by the NHESP (2007a).	QQ	N
Demolish the house and garage at 57 Bunker Hill Lane, Quincy.	QQ	Y
Stabilize and mothball the Granite Rail Quarry compressor house.	QQ	N
Pursue historic curatorship for the Granite Rail Quarry compressor house.	QQ	N
Monitor boundaries for encroachment.	QQ	N
Require that Trail Watch members operating in this section receive training in snake biology and conservation, and submit Rare Species Observation Forms to NHESP for all rare snakes observed.	SM	Y
Remove the playground located on the north side of Mayor William T. Shea Memorial Rink.	SM	Y
Modify signs and striping at the Shea Rink parking lot to ensure compliance with accessible parking requirements.	SM	N
Develop a written agreement for the use of the St. Moritz Horseshoe Club.	SM	N
Request that the St. Moritz Horseshoe Club repair, replace, or remove its shed.	SM	N
Upgrade the Shea Rink sign to reflect that it now operates under a lease agreement.	SM	N
Install a memorial marker at the Sergeant Robert Allen Curry Ball Field.	SM	N
Plan landscaping, maintenance, and construction to avoid impacts to rare snakes; as recommended by the NHESP (2007a).	SM	N
Exclude all non-emergency vehicles, except in exigent situations, and non-utility company motor vehicles from trails in rare snake habitat east of Route 28.	SM	N
Develop a watershed management plan for the St. Moritz Ponds.	SM	N
Conduct a survey for additional remnants of historic winter recreational use of the St Moritz area.	SM	N
Monitor boundaries for encroachment.	SM	Y
Open appropriate, existing trails to mountain bike use, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a). Revisit the impacts of this recommendation on natural resources, golf course operations, trail user conflicts, and public safety in the upcoming Trail System Plan.	PO	Y

Appendix I. Management Recommendations for the Blue Hills Planning Unit. (Continued)

Recommendation ^a	Section of Reservation ^b	Implemented? ^c
Replace the irrigation system at the Ponkapoag Golf Course with an automatic irrigation system, and provide associated mitigation (Bowles 2009).	PO	N/A
Increase seasonal staffing at Ponkapoag Golf Course, by up to five positions, to permit improved course maintenance in accordance with industry standards.	PO	N/A
Modify signs and striping at the Ponkapoag Golf Course parking lot to ensure compliance with accessible parking requirements.	PO	N/A
Improve the tees, greens, bunkers, and cart paths at Ponkapoag Golf Course.	PO	N/A
Correct “extreme flooding” conditions on Course #1 at Ponkapoag Golf Course.	PO	N/A
Certify Ponkapoag Golf Course as an Audubon Cooperative Sanctuary (Audubon International 2009).	PO	N/A
Create an Assistant District Manager position for the Golf Courses District.	PO	N/A
Develop limited recreation infrastructure at Indian Line Farm, including the creation of: a small (i.e., eight or fewer spaces) gravel parking lot; a nested-loop trail; and a connector trail from the Indian Line Farm parking lot to Redman Farm Path. Employ guidelines detailed in <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a).	PO	N/A
Request copies of Transient Non-community Water System licenses from the AMC and YMCA camps and keep them on file at the Regional Office. Make provision of copies of these licenses a condition of future permits.	PO	N
Install a Cantilevered Identification Signs at each of the four following locations: Ponkapoag Trail off-ramp, at the entrance to the YMCA Ponkapoag Outdoor Center; Canton Avenue, Randolph, at the entrance to the AMC Ponkapoag Camp; Randolph Street, Canton, at the entrance to Fisherman’s Beach; and Washington Street, Canton, at the entrance to the Indian Line Farm parking area.	PO	P
Work with the AMC Ponkapoag Camp to bring the camp into compliance with State Sanitary Code.	PO	N
Investigate the benefits of active habitat management at Ponkapoag Pond and Bog in order to prevent the shading of pod-grass by other vegetation and to promote the regeneration of Atlantic white cedar; as recommended by the NHESP (2007a).	PO	N
Create and monitor turtle nesting habitat; as recommended by the NHESP (2007a).	PO	N
Replace the missing gutter at the Carpenter’s House to prevent additional water damage.	PO	N/A
As part of the reservation’s Vegetation Management Plan, manage the sugar maple allée to preserve this historic landscape feature.	PO	N/A
Manage vegetation at Pump House B, the Randolph Street cellar hole, and the concrete foundation pad at Fisherman’s Beach.	PO	N
Stabilize the masonry at the Ezekiel Fisher saw/grist mill site.	PO	N/A
Conduct annual monitoring of the stonework of cellar holes and the Ezekiel Fisher saw/grist mill site, and carefully perform routine vegetation removal following guidance provided by the Office of Cultural Resources.	PO	N/A
Monitor boundaries for encroachment.	PO	N
Open appropriate existing trails to mountain bike use, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a). Revisit the impacts of this recommendation on natural resources, trail user conflicts, and public safety in the upcoming Trail System Plan.	PE	Y
Contact MassDOT to clarify use of the replacement of bridge over Route 24 by DCR administrative vehicles.	PE	N
Develop a written agreement with North Randolph Little League for the operation and management of the ball fields.	PE	N
Update future versions of the Blue Hills Reservation Trail Map and Guide to identify new off-reservation parking resulting from the Article 97 land transfer.	PE	N
Develop a written agreement with the Town of Randolph for the use of the Donovan School parking lot for visitor parking during ranger-led hikes.	PE	N
Pursue recommendations of the Phase I Initial Site Investigation and Tier Classification report (GEI Consultants, Inc. 2009).	PE	Y
Replace the perimeter fence at the Nike Launcher Area and post <i>No Trespassing</i> signs to discourage vandalism.	PE	N
Stabilize and mothball the Nike Launcher Area’s sentry station, generator building, and garage.	PE	N/A
Remove graffiti from the Nike Launcher Area’s buildings.	PE	N/A
Monitor boundaries for encroachment.	PE	Y

Appendix I. Management Recommendations for the Blue Hills Planning Unit. (Continued)

Recommendation ^a	Section of Reservation ^b	Implemented? ^c
Open existing trails to mountain bike use, in accordance with <i>Trails Guidelines and Best Practices Manual</i> (DCR 2010a). Revisit the impacts of this recommendation on natural resources, trail user conflicts, and public safety in the upcoming Trail System Plan.	WS	Y
Develop a written agreement with the tenant's association at the Ridge at Blue Hills regarding adoption and expansion of the picnic area.	WS	N
Revoke the permit issued to Ridge Arena that allows for the parking of vehicles along the old Route 128.	WS	N

- a. See DCR (2011a) for citations for references listed in these recommendations.
- b. The sections of the Reservation are: BF = Brookwood Farm; BH = Buck Hill; CH = Chickatawbut Hill; GB = Great Blue Hill; HE = Hemenway Pond; HP = Houghton's Pond; HQ = Reservation Headquarters; LB = Little Blue Hill; OP = Operations Yard; PE = Ponkapoag East; PO = Ponkapoag (not including golf course); QQ = Quincy Quarries; SM = St. Moritz; UN = Unquity Road; and WS = West Street.
- c. Implementation codes include: N = No, the recommendation was not implemented; N/A = the recommendation is no longer applicable; P = the recommendation was partially implemented; Y = Yes, the recommendation was fully implemented.

Appendix J. Rapid Assessment and Trail System Recommendations for Wrentham, Franklin, and F. Gilbert Hills State Forests (DCR 2015).

RAPID ASSESSMENT AND TRAIL SYSTEM RECOMMENDATIONS



WRENTHAM, FRANKLIN, F.G. HILLS STATE FORESTS

OVERVIEW:

At nearly 2,900 acres, F. G. Hill, Franklin and Wrentham State Forests, managed under one unit, contain lovely mixes of wetland habitats, diverse woodlands and rocky outcrops. These are three of only eight DCR properties that allows motorized trail use, and each has one or two loop trails designated for use by off-highway motorcycles (OHM).

These forests are largely surrounded by a mix of commercials, industrial and residential neighborhoods along and bisected by the Route 495, with multiple trail access points from adjacent private properties.

F. GILBERT HILLS (1,027 acres)

A headquarters building and year-round staff are situated at F. G. Hills which has over 30 miles for forest roads and trails

including an OHM loop and the long-distance Warner hiking trail.

WRENTHAM (1,024 acres)

Has one gravel parking area, approximately 35 miles of forest roads, motorcycle trails, and non-motorized trails, also including sections of the Warner Trail.

FRANKLIN (843 acres)

In minimally developed with no day use area or formal entrance. Parking is available adjacent to a neighboring town water tank. Franklin contains nearly 19 miles of forest road and trails, including the eastern terminus of the 22-mile Southern New England Trunkline Trail (SNETT) that runs all the way to Douglas.

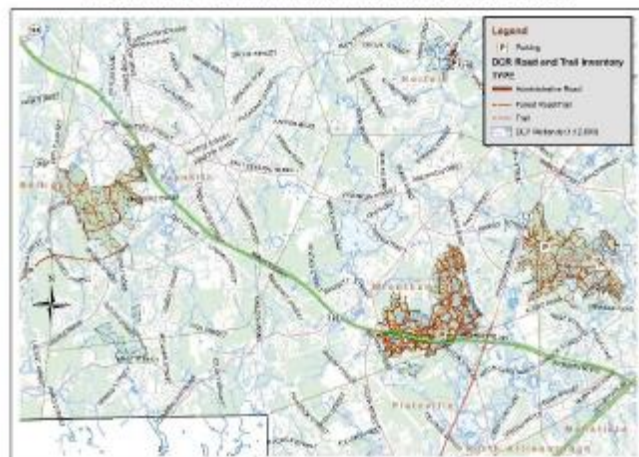
TRAIL EXPERIENCES AND FEATURES

The primary “managed trail uses” at these forests are off-highway motorcycle, mountain biking and hiking.

Key features include the open woodlands, rocky outcrops and wetland habitats.

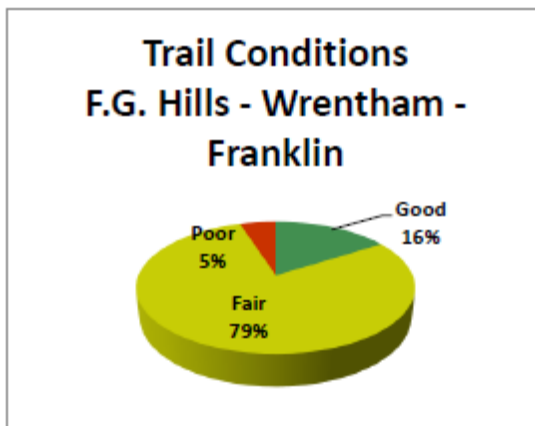
The Civilian Conservation Corps (CCC) was active in these forests and helped to develop their trail systems.

F. G. Hills, Wrentham and Franklin State Forests



TRAIL SYSTEM MANAGEMENT ISSUES

- The primary trail system management issue is that there is poor separation and distinction between the designated motorized loops and trails that are designated as non-motorized.
- In Wrentham, there are nearly 50 intersections of motorized and non-motorized trails.
- The Warner Trail (a long-distance hiking trail) is currently routed on several sections of motorcycle trail.
- There is currently a lack of clear signage and blazing designating and distinguishing motorized versus non-motorized trails.
- The current trail maps are somewhat confusing and inaccurate.
- Numerous access points from adjacent properties limit DCR's ability to monitor and control use.
- Trails at the forests are mostly classified in "Fair" condition. This is, to some extent, the nature of motorized trail use.



- Trail density at the forests is quite high. At F.G. Hills and Wrentham it is over 11 kilometers / square kilometer. This is higher than DCR's target range for a forest designated as Woodland (3-6) or Parkland (6-9).

RECOMMENDATIONS:

PLANNING:

- Seek opportunities to close, restore and naturalize trails in these forests, particularly:
 - Rutted trails in poor condition
 - Non-motorized segments that connect between motorized segments
 - Illegal trails
 - Trail segments that lead off DCR property on to adjacent private parcels
- Consider opportunities to reduce the number of intersections between motorized and non-motorized trails particularly east of Taunton Road.
- Designate one-way travel on the OHM loops for all wheeled uses.
- Explore opportunities to re-route the Warner Trail off of motorized trails, and through key parking area.



EDUCATION AND WAYFINDING:

- Continue efforts to install trailhead and intersection signage at strategic locations, including signage that denotes allowed uses.
- Install welcome kiosks at Franklin and F. G. Hills, High Rock Road to display rules, regulations and user information.
- Clearly blaze motorcycle loops in yellow.

- Clearly blaze the Warner Trail in white.
- Request an improved map with accurate trail inventory data and scenic destinations.
- Work with the Friend of the SNETT to enhance signage on the SNETT

OPERATIONS AND MAINTENANCE:

- Work with King Philip Trail Riders and others to repair the worst trail damage locations.
- Close, by dropping trees and closing sight lines, any illegal trails or other trails segments identified for closure.
- Use temporary signage to alert users to planned closures.
- Engage volunteers in basic annual trail maintenance.



CAPITAL:

- Develop a small parking area and kiosk at the Warner trailhead on Madison Street, in Wrentham State Forest.
- Develop a parking area, with gate and contact station at High Rock Road, F.G. Hills.
- Submit an SCA crew request to complete selected trail closure, maintenance and re-route projects.
- Advocate for capital funds to repair and enhance the surface of the SNETT.



LAND ACQUISITION:

- Work with the DCR Land Acquisition Program to pursue acquisition of a parcel along Grove Street, Franklin that can be developed as a primary, formal parking area and park entrance.

Appendix K. Photo Credits.

All photos were taken by the DCR except as noted in Table K.1. All photos were cropped to fit the page format and resampled to 300 DPI. Pictures taken by the DCR were also autocorrected using the Auto Smart Fix feature in Adobe Photoshop Elements version 6.

Table K.1. Information on sources, modifications, and licensing of non-DCR photos used in this RMP.

Page	Photo	Photographer	Source ^a	Modifications ^b	Creative Commons ^c	Terms of Use
1-4	Blue Hills Parkway	Ornoth	flickr	C, R	Yes	A, N, ND
1-7	Manning Pool	City of Brockton	Brockton	C, R	No	-
2-1	Ponkapoag/Great Blue 1	Charles Wohlers	flickr	C, R	Yes	A, N, ND
2-19	Eliot Bridge 1907	MPC	unknown	C, R		
2-24	Houghton's Pond	Robert Gray	flickr	C, R	Yes	A
2-41	Hunter check-in	Marion Larson	MassWildlife	C, R	No	-
3-5	Predicted flooding	-	Oliver	A, C, R	No	-
5-1	Neponset River	Bill Llott	flickr	C, R	Yes	A, N, ND
5-6	Canton Airport runways	-	Oliver	A, C, R	No	-
5-11	Fowl Meadow/Neponset River	Bill Llott	flickr	C, R	Yes	A, N, ND
6-4	Predicted flooding	-	Oliver	A, C, R	No	-
6-10	CCC staff	Unknown, from print on file at F. Gilbert Hills SF	DCR	A, C, R	No	-
7-1	Morning calm on the boardwalk	"lastonein"	flickr	C, R	Yes	A, N, ND
7-4	Predicted flooding	-	Oliver	A, C, R	No	-
8-4	Predicted flooding	-	Oliver	A, C, R	No	-
11-4	Predicted flooding	-	Oliver	A, C, R	No	-
11-4	King rail	Carol Foil	flickr	C, R	Yes	A, N, ND
13-4	Predicted flooding	-	Oliver	A, C, R	No	-
13-4	Blanding's turtle	"Andrew C"	flickr	C, R	Yes	A

- Sources of photographs include: flickr = flickr via Creative Commons (<http://creativecommons.org/>); Mass Wildlife = photo provided by Massachusetts Division of Fisheries and Wildlife; Oliver = MassGIS's Online Mapping Tool; follow links to corresponding maps used to generate images.
- Modifications include: A = Auto Smart Fix in Photo Shop Elements 6.0; C = Cropping to either 3.35 x 2.4 inches or 7 x 3.5 inches; and R = Resampling pictures to 300 DPI. Auto Smart Fix was not applied to any picture obtained through Creative Commons.
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